APRIL 18, 1959
VOL. 156 — NO. 16

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
SINCE 1901

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 307 S. Dearborn St., Chicago 5, Ill. Subscription $4.00 per year. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879.

Guaranteed Circulation This Issue
13,691 of Which 12,464 is Paid

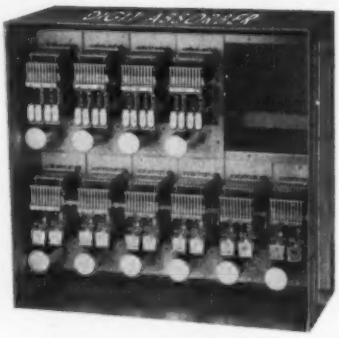
REVENUE PRODUCERS

Telephone companies are finding out that airport paystations are big revenue producers. These three-booth multiple installations are a part of a total installation of 30 stainless steel booths in the baggage lobby of the new Portland (Ore.) Airport.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

INVESTIGATE UNIVERSAL DIGIT ABSORBER*

FOR CONVERTING EXISTING SWITCHBOARDS INTO FULL 2-5 NUMBERING



Digit absorber case requires 17" on a 19" relay rack. Capacity 12 units.

Other ***UNIVERSAL*** Equipment:

COMPUTER INTERCEPT
Code-to-Selective RINGING CONVERTER
TRUNK DIGIT REGISTER

DIRECT DISTANCE DIALING REQUIRES A 2-5 CODE

Few dial switchboards of earlier design have provisions for adding digit absorbing features economically. The Universal Digit Absorber fills this need easily and at nominal cost. Installation requires very little time and does not interrupt service.

The ever-increasing requirements of Extended Scope Dialing on a universal numbering arrangement are easily handled by the Universal Digit Absorber. The Digit Absorber is a factory assembled, fully-wired, applique unit that can be connected to any existing dial switchboard to pad in three digits of exchange code (ABX) or four digits in the case of a three digit dial board.

There are two types of Universal Digit Absorbers, depending on the complexity of the exchange codes assigned:

19-S unit will handle exchange codes, as illustrated by AB-X, where the "X" digit is not a duplicate of the "A" or "B" digit.

19-L unit is required where the "X" digit is a repeat of either the "A" or "B" digit.

In addition, Universal offers a Trunk Digit Register which can be applied to "Trunk on Line" dial boards where five or more digits are required to be delivered to a 3 or a 4 digit tributary exchange. This unit also affords added link hunting time and safeguards against partial digit registration.

* Pat. Pend.

FOR FULL PARTICULARS
PLEASE WRITE DIRECT TO
UNIVERSAL
OR CONSULT YOUR DISTRIBUTOR
FOR DETAILS

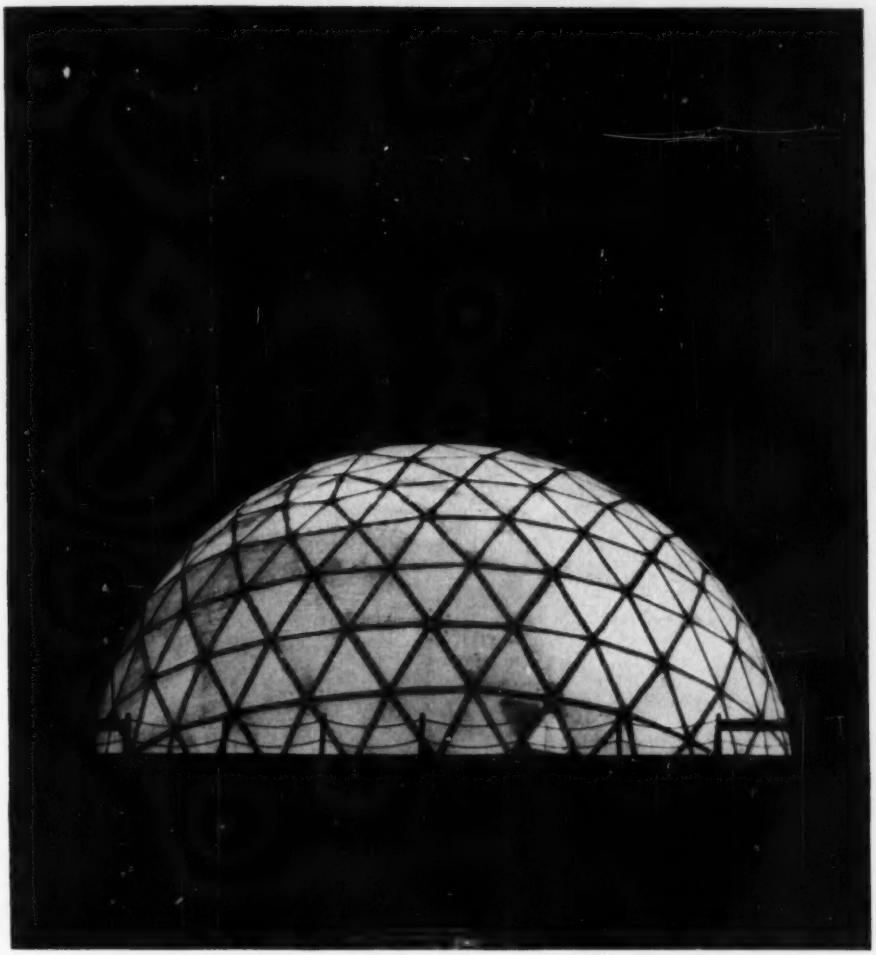
UNIVERSAL

CONTROLS CORPORATION

OFFICE AND PLANT – CARROLLTON, TEXAS
MAIL ADDRESS – P. O. BOX 13122, DALLAS 20, TEXAS
Telephones: Carrollton 3885 — Dallas CH 7-3123

ON ORDERS DIRECT TO **UNIVERSAL**, BILLING WILL BE THRU YOUR PREFERRED DISTRIBUTOR.

THE ARCTIC EYE THAT NEVER SLEEPS



This plastic radome houses a radar antenna constantly scanning the skies to detect the presence of aircraft. A line of these radars provides early warning of any threatening approach to the North American continent.

The Distant Early Warning Line is now on perpetual guard duty. Spanning the Arctic from Baffin Island to Alaska, this great system was conceived at the Lincoln Laboratory of M.I.T. and produced under the leadership of Western Electric.

But first the DEW Line had to be engineered into a workable system. This was done at Bell Telephone Laboratories.

The obstacles were formidable. Conventional means of communication—telephone poles, cables and even line-of-sight microwave radio—weren't feasible. A complicated system had to be made to operate reliably in a climate so cold that outdoor maintenance is impracticable farther than a few hundred feet from heated habitation.

Whenever possible, Bell Laboratories engineers utilized well-proven art. But as it became necessary, they innovated. For example, they designed and directed the development of a new and superior radar which automatically scans the skies, pinpoints a plane and alerts the operator.

To reach around the horizon from one radar station to another, they applied on a massive scale a development which they pioneered—transmission by tropospheric scatter. Result: at a DEW Line Station you can dial directly a station more than a thousand miles away and converse as clearly as with your home telephone.

Bell Laboratories' contribution to the DEW Line demonstrates again how telephone science works for the defense of America.

BELL TELEPHONE LABORATORIES

WORLD CENTER OF COMMUNICATIONS RESEARCH AND DEVELOPMENT

FLASHES AND PLUGS

NO GOOD AT LANGUAGES. Electronic computers are giving the English trouble. Not serious trouble, it is just that an electronic brain, when it tries to translate words, is far too literal.

For example, take the phrase "Out of sight, out of mind." To the machine "out of sight" means obviously something which can't be seen. "Out of mind" is someone who is crazy. Consequently (in the hands of the machine) the phrase turns into "invisible idiot."

Even more startling is the electronic brain's rendition of "the spirit is willing but the flesh is weak." The machine pondered over this statement in its humorless way and came up with the fact that "the drink is tolerable but the meat is uncooked."

A realy dilly is "give the imagination rein, the possibilities are endless." The machine went to town. "Let the imagination get wet," it stated, "it has no tail."

Experts have met in London to see if they can straighten out this problem.

•

WATER-TIGHT ANSWER. A report has come in on a San Francisco salesman who picked up his telephone, took an order, and blurted: "Yes, sir, we'll be happy to make the delivery." The "sir" turned out to be a husky-voiced woman who was so offended she threatened to cancel her charge account.

The huckster rose to the occasion. "It's my Navy training," he assured her. "When I was an enlisted man we had to address Wave officers as 'sir' to show respect. Now I call every woman 'sir,' madam."

•

LIFE'S CRUELLEST BLOW. Two Texas ladies met for luncheon in a hotel.

"I just telephoned Sara, my dear, and she's so upset. She and Bob were hoping to locate some good water on their place. Instead, they've struck more oil!"

"What a pity," sighed her companion, "the way things are going, they're likely to find themselves living in a hotel in Houston one of these days."

•

AN OUNCE OF PREVENTION. Since Ed could not stop snapping his fingers, he went to see the company doctor.

"Why do you do this?" asked the doctor.

"It keeps the tigers away, Doc."

"My good man," replied the doctor, "there are no tigers within 6,000 miles."

"Effective, isn't it," beamed Ed.

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Dept. of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1904

April 18, 1959

CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

FIRST AID AND PHILOSOPHY 19

KEEPING UP WITH THE LATEST DEVELOPMENTS—Part 5 24
By Ray Blain

THE OPERATOR'S CORNER 28
By Mayme Workman

A PORTABLE TEST HYBRID SET 29
By Harold B. McKay

PLANT MAN'S NOTEBOOK 32
By Ray Blain

PLANT MAN'S QUIZ 33
By Ray Blain

COURTS AND COMMISSIONS 36

CONVENTION CALENDAR 38

NEW PRODUCTS 52

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

VAC **Circulation Audited and Verified (direct from auditor to subscriber) By Verified Audit Circulation Co.**

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879. 30c per copy (except special issues—50c). Subscription $4.50, 1-year; $7.00, 2-years; $9.00, 3-years. Add $1.00 per year for postage to Canada and Pan American countries; $2.00 per year to Foreign countries. Telephone WAbash 2-2435.

NEW, SHORT *Koiled Kords**

CUT HANDSET LOSSES . . . on Coin Collector Telephones

These new short KOILED KORDS retractile cords allow sufficient length for use in telephone booths but are short enough to prevent the handset from hitting the floor if dropped.

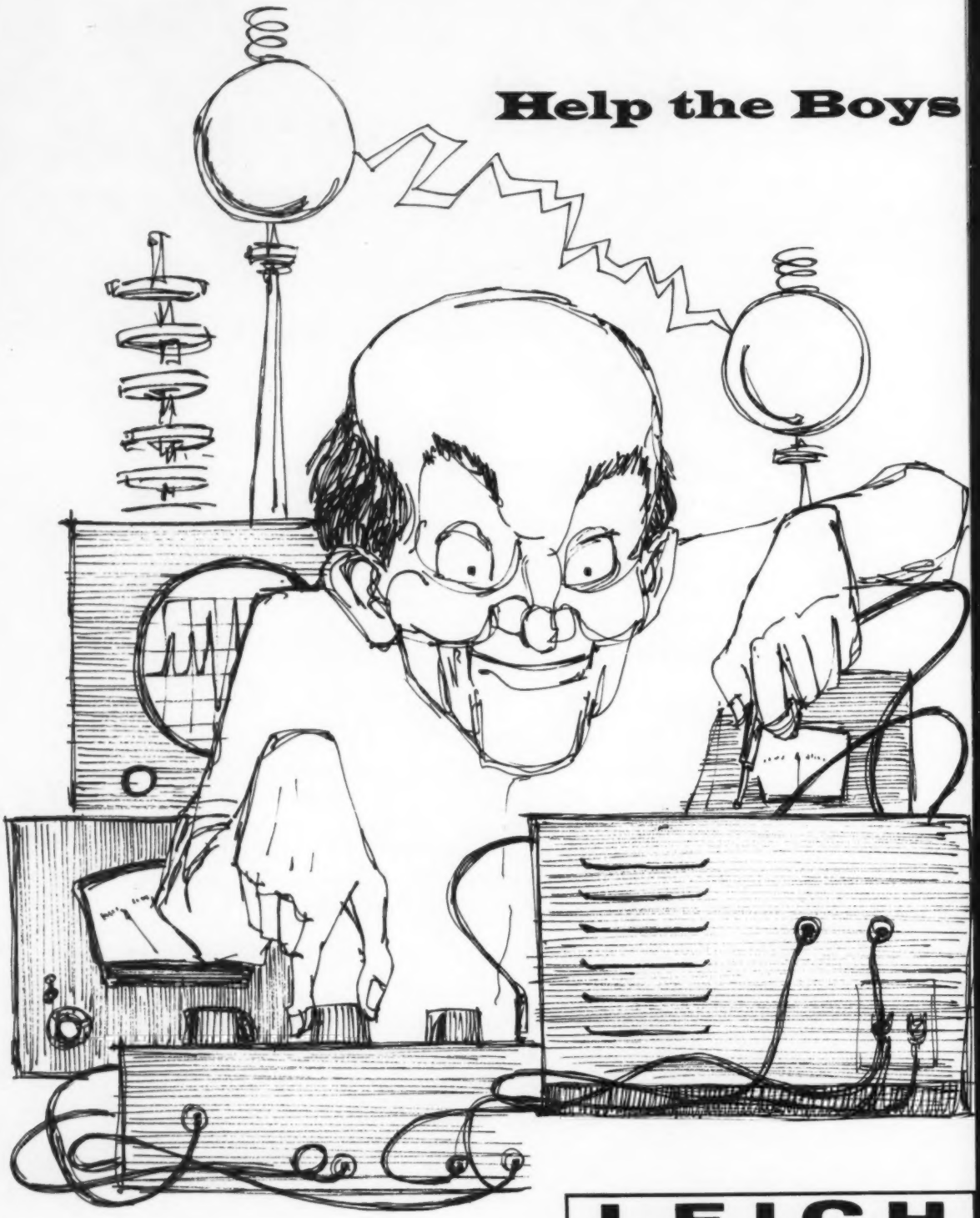
Figure your past losses from broken handsets and you'll see how much these new short KOILED KORDS can save you

These new short KOILED KORDS are available for Automatic Electric, Kellogg, Stromberg-Carlson and Western Electric handsets.

KOILED KORDS, the original retractile cords, are the result of 17 years of research, development and use.

Koiled Kords INCORPORATED BOX K NEW HAVEN 14, CONN.

Help the Boys



LEICH

Subsidiary of GENERAL TELEPHONE & ELECTRONICS

in the Back Room

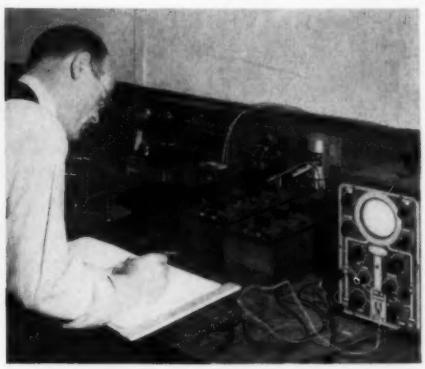
Help You

Let's face it. If you want to stay ahead in business, you have to have some creative genius orbiting in the back room.

Seriously, Leich has always spent considerable time and money on research to bring the telephone industry advanced equipment, better ways to get the job done.

You help us carry on valuable research and development work when you purchase supplies from Leich. Besides, we give you the finest supply service available. You get fast delivery along with the highest quality tools, supplies and materials.

Why not order your supplies where the whole company is working for the long haul and not the quick dollar? Try us for your next supply order. You'll like Leich.



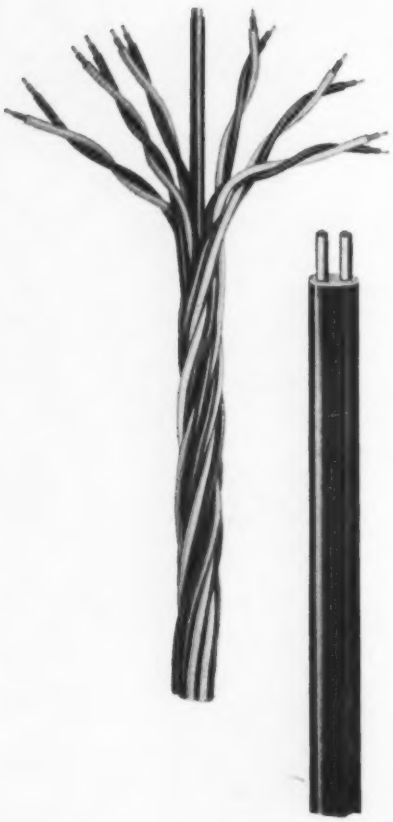
The research facilities at Leich are complete . . . Leich research people know telephone technology.

LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS

PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL.
EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO
SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS
SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA

manufacturers of telephones, switchboards and related apparatus since 1907

In Times of Change... depend on ANSONIA® Ankoseal® RURAL CABLES



to meet every changing requirement

Ansonia's leadership in quality and service meets the challenge of America's progressive telephone industry.

Ankoseal Rural Cables now being shipped have been modified as follows:

RURAL DISTRIBUTION WIRE

All Ankoseal Rural Distribution Wire, including the popular 3-6-11 and 16 pair sizes, conform with new REA color coding.

PARALLEL LINE WIRE

Ankoseal Parallel Line Wire is manufactured as specified by the REA.

For complete information on the finest rural cables made, contact your authorized Telephone Supply Distributor or write direct to Ashton 1, R. I.

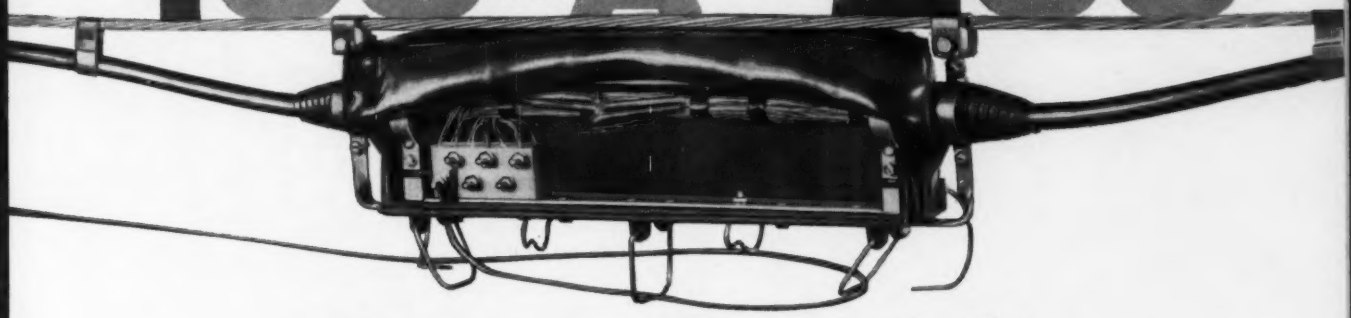
THE ANSONIA WIRE & CABLE COMPANY

111 MARTIN STREET, ASHTON 1, RHODE ISLAND

"Leadership in Plastic Cables Through Quality and Service"

600-8

100-A • 200



ready access cable terminals

for terminals and straight splices

300 • 400

ready access cable closures

for branch splices

for use with plastic jacketed, plastic insulated cables up to 2.2″ in diameter

READY ACCESS CABLE TERMINALS

Catalog Series 100-A . . . for cable up to 1.0″ O.D.
Catalog Series 200 . . . for cable from 1.0″ to 2.2″ O.D.

READY ACCESS CABLE CLOSURES

Catalog Series 300 . . . for cable up to 1.0″ O.D.
Catalog Series 400 . . . for cable from 1.0″ to 2.2″ O.D.

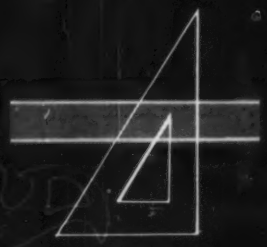
Up to four 6-pair Reliable Catalog No. 105 Terminal Blocks can be added to both terminals and closures, or the space can be used for loading coils. The flexible neoprene cover can be folded back while internal wiring is altered to meet changing requirements.

1909 50TH ANNIVERSARY Reliable 1959

Reliable

ELECTRIC COMPANY • FRANKLIN PARK, ILLINOIS

A SYMBOL OF INTEGRITY SINCE 1909



MODERN STYLING

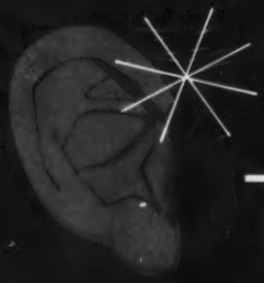
+

DIAL IN THE BASE*

+

LIGHT WEIGHT

+



ELECTRONIC TONE SIGNAL**

+

FULL RANGE OF COLORS

NORTH *Ericofon*

Only the North Ericofon has the plus features that make it the most wanted telephone in the world—only the North Ericofon gives you such a real opportunity to sell revenue producing extensions—only North offers you the Ericofon!

*Also available with dial blank

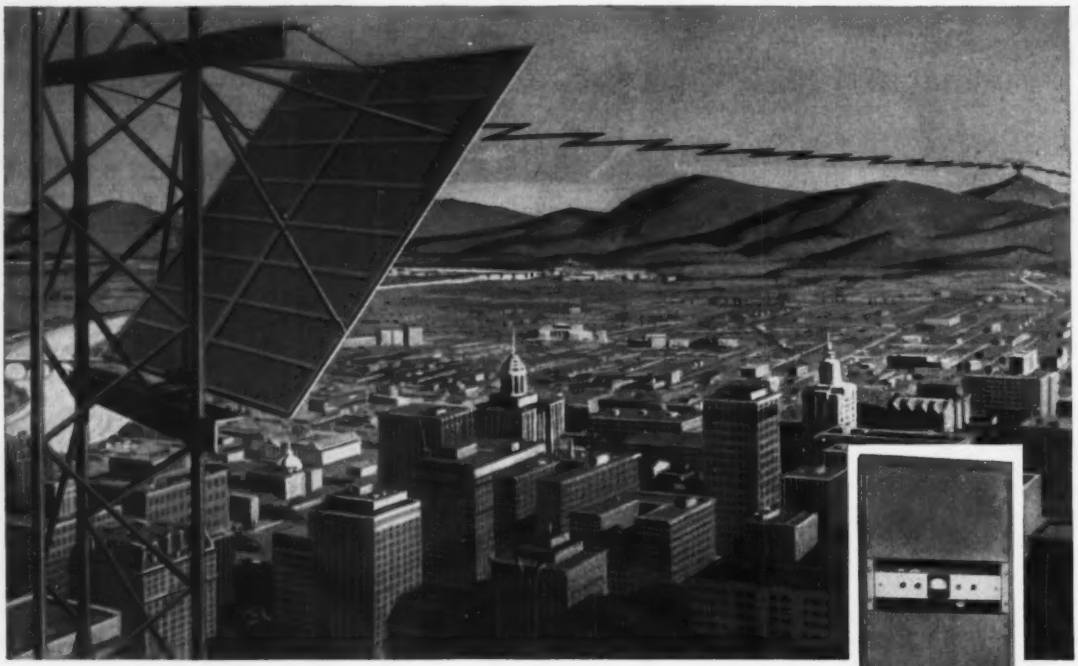
**Also available for ringerless extension installation

THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

Galion, Ohio

For True Fidelity Video Relaying Specify Philco Microwave



PHILCO TLR-6 TRANSMITTER
Consists of transmitter chassis and associated power supplies. All operating controls and most frequently used maintenance controls are conveniently located on front panel.

Only Philco microwave systems give you top quality reproduction of relayed video signals . . . at low cost.

Philco microwave provides the highest power in the industry, 1 full watt output, that assures you of outstanding operational reliability for continuous, unattended service.

Operating in the 5900mc to 7125mc bands, Philco's video system is equally applicable to Community TV relay and S-T-L relay of NTSC compatible color or monochrome signals, including audio, with true picture and sound fidelity.

For reliable, economical, unattended video relaying . . . choose Philco microwave. Write today for catalog sheets describing Philco TLR equipment. *Government & Industrial Division, 4718 Wissahickon Avenue, Philadelphia 44, Pennsylvania. In Canada: Philco Corporation of Canada Limited, Don Mills, Ontario.*

- Highly reliable, unattended operation
- True repeater permits top quality, long haul relaying
- Simplified maintenance
- NTSC compatible color or monochrome
- 1 full watt output
- Full 15kc audio channel multiplexing
- Automatic standby
- Built-in metering and test circuits

PLUS PHILCO'S COMPLETE TURNKEY SERVICES:

Site Surveys • System Planning • Installation • Field Service

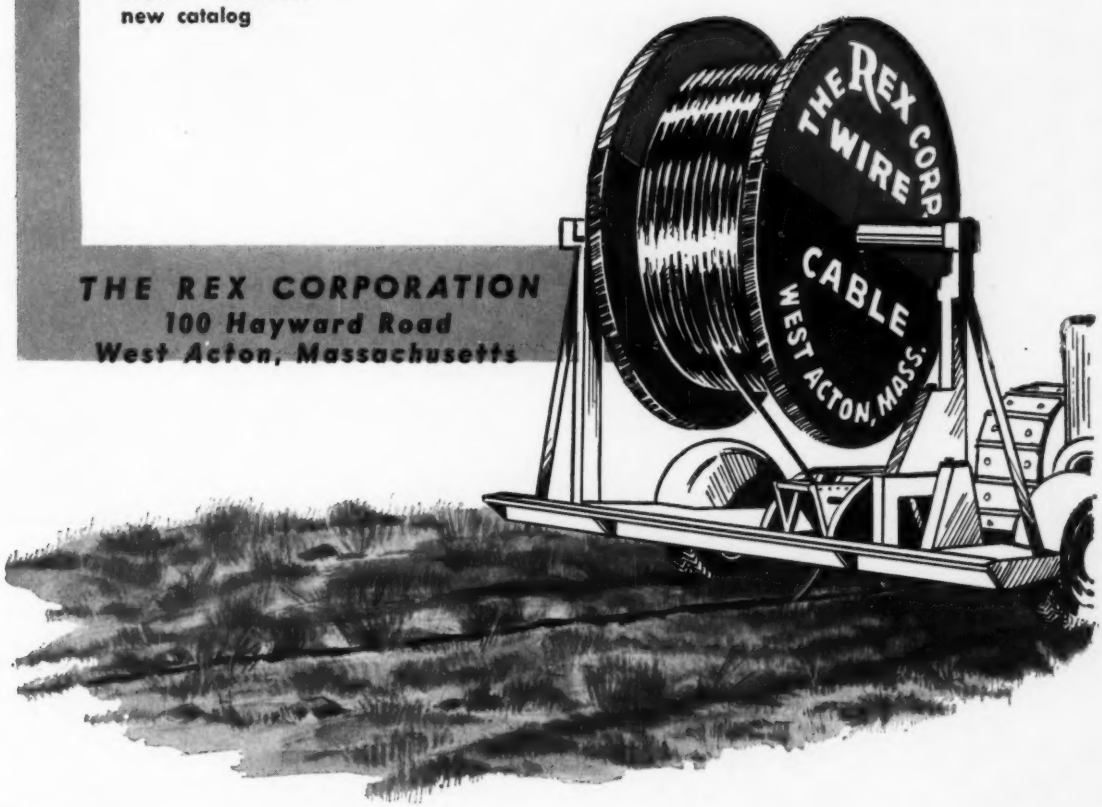
PHILCO QUALITY FIRST!

Rex

DIRECT BURIAL CABLE

TO R.E.A. PE-23 SPECIFICATIONS

For information on our complete line of plastic insulated telephone wire and cable — write for new catalog

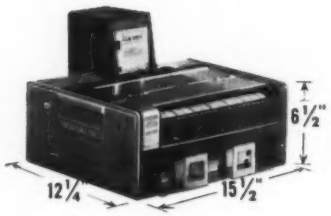


THE REX CORPORATION
100 Hayward Road
West Acton, Massachusetts

Introducing the Recordak Portable

SO TRIM . . . AND IT WEIGHS

Here at last is a wonderfully capable microfilmer that weighs less than an office typewriter.



Take the Recordak Portable wherever the work is.

Simple for anyone to operate. Just plug it in and you're ready to take pictures. Many unusual features in the Portable—for example, who would imagine that two rolls of microfilm could be exposed simultaneously in so trim a microfilmer?

New Portable opens door for even the smallest telephone companies to enjoy all the short cuts and protection which microfilming *alone* provides. At the same time, larger companies will find the new Recordak Portable a valuable adjunct to present microfilmers. Or use several Portables in decentralized microfilming.

Mail coupon today for free booklet giving full details on the new Portable.

"Recordak" is a trademark

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—*now in its 31st year*

new Microfilmer

ONLY 24 LBS.

Just drop items into new Recordak Portable and they're photographed.

MAIL COUPON TODAY

RECORDAK CORPORATION, 415 Madison Avenue, New York 17, N. Y.
Send free booklet giving details on new Recordak Portable Microfilmer.

AA-4

Name_____ Position_____

Company_____ Street_____

City_____ State_____

DO YOU HAVE DIRECTORY PROBLEMS ON YOUR MIND?

Why not let

L. M. BERRY and CO.

SOLVE THEM FOR YOU...

For 49 years, trained and experienced Berry men have been handling the directory burdens of telephone companies who have wished to concentrate on other areas of management and service. Today, more than 270 Independent and Bell Telephone Companies have arranged with L. M. Berry and Company to solve their directory problems. Call or write L. M. Berry and Company for more information about worry-free directories and increased directory advertising revenues.

Telephone Directory Advertising Exclusively

HULMAN BUILDING • DAYTON 2, OHIO • BAldwin 4-7421

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

Senator Johnson, "fast on the draw" in proposing commission to study job-aid proposals. Senate passes bill to strip Secretary of Agriculture Benson of veto power over big REA loans. New York commission declares tax savings from accelerated depreciation must be considered savings for rate-making; utilities must take advantage of such savings.

SPRING came early to the Nation's Capital this year. And, unless the weatherman should double cross us before these lines get into print, the balmy weather should produce a record-breaking, ever-welcome crop of blossoms, and tourists. The crocuses should all be croaking, and the tree toads toadying in grand manner. This is the time of year when great multitudes of high school children and many of their elders make a pilgrimage to the Potomac to visit the Washington zoo, among other things.

This year, for the first time in many years, the Japanese cherry blossoms were right on time and in peak form for the annual pageant. All the state princesses were never lovelier. The thermometer registered 85 degrees, when the baseball season officially opened at Griffith Stadium. The President happened to be in Georgia, so Vice President Nixon threw out the first ball for a change. But, Ike probably figured that those terrible Washington Senators hardly rated better than a No. 2 man to do the opening honors. Nixon had to take a lot of joshing about just practicing up for the main starting assignment after 1960. But a host of Democratic congressmen, who were on hand, said Dick was way off form and would never make the grade in that department.

Among the thousands of other visitors to the Nation's Capital at this time were an estimated 6,000 to 7,000 delegates to what was billed in advance by the sponsoring AFL-CIO union organization as a "militant one-day rally" of the unemployed. They didn't look very militant to this observer. They seemed like a well-behaved, cheerful group, enjoying the trip just like all the other spring tourists. Quite a few apparently stayed over for the opening ball game next day. And, who could blame them, in such nice weather?

But if the "rally of the jobless" got good timing on the Washington weather, the timetable slipped a bit for propaganda purposes. On the very eve of the rally, the Labor Department took a lot of steam out of the prepared speeches about "deepening gloom of unemployment," when figures were released showing that the number of jobless had dropped 387,000 during the past month of March, while employment had soared 1,106,000 to make a total working force of nearly 64 million.

Union leaders were thus forced to take the tack that the employment pickup should have been even greater, and, besides, Ike plays too much golf, and so forth. Ike's golf and vacations were always good for a laugh, even from some of those leaders still showing some traces of their Puerto Rican suntans from the convention in San Juan last January.

It would be callous to make fun of even one hungry jobless man. But, when comparisons were inevitably made between this "march on Washington" with Coxey's Army in April, 1894, and the bonus marchers of 1932, it would seem that better living standards have caught up with everyone—even the jobless. Coxey's Army was a ragged mob, who literally marched to Washington from the mid-West, across the open fields and mountains. The 1959 edition came in special trains from 15 cities. Over 100 suffered mild food poisoning from turkey dinners served in one of the dining cars.

Sen. Johnson, Fast on Draw!

What the "rally of the jobless" was trying to accomplish (and may have succeeded) was to impress Congress with the importance of passing a lot of legislation which was originally launched as "depression cures." Although even the union leaders are reluctantly agreeing, at last, that the "recession" has receded so far you can't see it, for the boom, there is still plenty of political appeal to make-work bills and other cure-alls. Sen. Lyndon Johnson (D., Tex.), who has, himself, recently been the target of a somewhat smaller, but equally militant, rally of liberal senators, decided this was the time for him to pull the switch on his left-wing party critics, and show himself to be the champion of the common man, the poor and needy, etc.

So, to the surprise if not chagrin of certain liberal but less experienced senators, who thought they had a copyright on this sort of thing, it was "Tex" Johnson who adroitly seized a golden political opportunity of identifying himself with the labor union element. This element has heretofore been noticeably unenthusiastic about his Democratic leadership in the Senate. While other possible candidates for his party's top nomination were busy making speeches, Johnson jumped up in the Senate and offered a resolution for an 11-member commission to study various job-aid proposals. Sixty-seven other senators co-sponsored it—and quite a few must have said to themselves, "Why didn't I think of that?"

Johnson's resolution is designed to drum up support for bigger government spending—public works, housing, airport, federal aid to depressed areas—all the usual things. Then, he made a speech to the rally in which he seemed to say that if these things became law, there will be jobs aplenty for everybody (even the congressmen's relatives). The bipartisan commission (three each from the Senate and House and five named by the President) would report back next July. Nothing was said about taxes, of course, to pay for all these things.

What the more sophisticated observers were saying about Johnson's move did not quite add up to a belief in his relentless support for all these spending measures. Some saw in it a favorite old political maneuver. "Johnson grabbed the ball and tossed it to a committee," was the more cynical verdict. This will keep the ideas "under study" (Washington expression for "on ice") until Congress is about ready to knock off the session and go home for the Summer. Then, if the commission reports some spending bills without taxes, and Congress passes them, Ike will veto them. That puts the monkey on Eisenhower's back, and Johnson has a brand-new liberal reputation, for nothing, even if all this gets us nowhere.

Well, you have to admire that good old Texas footwork. Youngsters such as Jack Kennedy, Hubert Humphrey, and others will have to do a lot more practicing on the Washington merry-go-round before they can compete on this circuit.

REA Independence

On Apr. 8, the Senate passed a bill to take away Secretary of Agriculture Benson's veto power over REA loans. This was generally expected and predicted in this department. The House of Representatives will follow suit. But, the thumping big margin of the Senate passage was not so well anticipated. The final vote was 60 to 27. If the House approves by a similar margin and the White House vetos the bill (as generally expected) there is a serious question whether the measure could still be passed over the veto.

Even the strong pleas of the Republicans that this was a spite bill, designed to vent congressional pique on Benson, failed to cut down the size of the majority. The bill was sponsored in the Senate by Senator Humphrey (D., Minn.). It would clip Benson's authority over REA loans substantially. But, it would not necessarily remove REA from Agriculture Department supervision.

Another bill—offered as an amendment to the Humphrey Bill—would have had such an effect. It would have restored REA to the status of an independent agency. But it was swamped by a vote of 74 to 13. Oddly enough this amendment was sponsored by a Republican, Senator Curtis (Neb.). Then, the Senate rejected a move by Senator Capehart (R., Ind.) to send the bill back to committee. Senator Aiken (R., Vt.), a long-time supporter of REA, said he could not vote for the bill because it was simply a slap at "one man." Senator Lausche (D., Ohio) felt the same way.

But, most of the senators did not. And, so the bill was passed, with 53 Democrats and seven Republicans voting in favor of it, while two Democrats and 25 Republicans voted against it. So, on the whole, it was pretty clearly a partisan division.

The bill now goes to the House of Representatives where Speaker Rayburn (D., Tex.) is in favor of it and promised to get it moving as soon as possible. About the only roadblock which might remain to trip the bill would be the possible opposition of the conservative House Rules Committee. President Eisenhower could hardly refrain from vetoing such a measure, however, since it is so clearly aimed at his Secretary of Agriculture, Ezra Taft Benson.

What happens if the bill should become law, with or without the President's signature? This writer is inclined to the belief that as long as the present Administrator Hamil is in charge of REA there is not going to be much change in policy. After 1960, there will probably be a new Secretary of Agriculture, anyhow, whether Democrat or Republican.

Hamil has already testified that he has never been overruled by Secretary of Agriculture Benson. So what's the difference? Anyway, Benson's veto power is only applicable to proposed REA loans of over a half million dollars. Hamil said this was simply a matter of good administrative authority because of the secretary's statutory responsibility for REA operations.

So, if nothing is going to change, in a practical way, in REA policy for the next two years, maybe the bill is—as Senator Capehart said of it—"as much needed as a third leg." And maybe the senators, having gotten some more anti-Benson feeling out of their systems, will let it go at that. It will be recalled, however, that this bill is part of a promise Democratic leaders made to the rural electric cooperative leadership last January. Another part of the promise was to keep REA interest rates at 2 per cent. They will probably make good on both points.

New York Depreciation Policy

Telephone companies, as well as other public utilities in New York State, will have to take a long, hard look at a recent Declaration of Policy unanimously adopted by the New York Public Service Commission. This policy deals with both accounting and rate case treatment of liberalized depreciation, and accelerated amortization, as permitted by the Internal Revenue Code, with respect to electric, gas, steam, telephone, water, and omnibus corporations under its jurisdiction in New York State.

Although the policy set forth in an opinion by the commission concerns primarily accounting matters, it could have an effect upon certain aspects of utility finances and rates paid by the consuming public. The new policy requires, in brief, that: (1) Any savings that utilities realize for federal tax purposes, under certain provisions of the Internal Revenue Code, must also be considered as savings for rate-making purposes before the commission; (2) any utilities eligible for this type of federal "tax saving" should take advantage of the law and pass the saving along to their consumers.

The 40-page New York commission opinion does not definitely say that all utilities in that state will be charged with "tax savings," even though they do not elect to take accelerated depreciation. But, the implication that the commission may take future action along that line is clearly expressed. The declaration stated, in effect, that any utility failing to take advantage of the federal tax saving opportunity may, when applying for a rate increase, be charged with the amount it "might have saved"; and such a utility might be required to adjust its rate schedules accordingly. This highly controversial view of the right of utility company taxpayers to exercise elections under the Federal Revenue Act would doubtless provoke test litigation, if the commission attempts to put it into effect.

What the New York commission proposes to do about such "tax savings," where utility companies *do* elect to use the stepped-up depreciation schedules is, however, very definitely settled. Such differences between "normal" and actual tax payments must be deposited in a reserve account and the funds may be used for capital expansion purposes, but not for dividends. Any excess must be channeled back annually to provide for the following year's tax payment. The commission rejected the position of the utility companies, which contended that the so-called "savings" were only "deferred taxes" and that the utility company should have the use of the

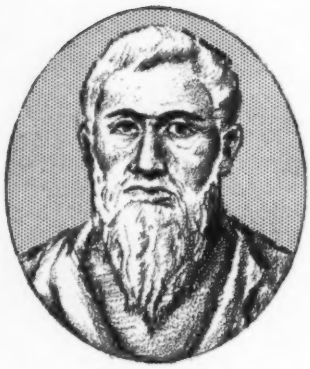
(Please turn to page 41)

first aid and philosophy?

SORT OF LIKE oil and water, isn't it? Whoever heard of first aid and philosophy even being mentioned in the same breath, to say nothing of sharing the same headline. Yet there is a very definite relationship between the two. Take the "perfect state" concept in philosophy, for example. We know that many of history's great thinkers were concerned with, among other things, the search for a perfect state. Though many stratagems were advanced, some of which received practical trials, such a state has not yet been developed. Now, unrelated and unbelievable as it may seem, it can be said today that a thorough and practical knowledge of first aid is one of the factors which one day will help us to attain the perfection we have sought for so long. How? Look at it this way. If a perfect state can be defined as a culture or people with one government (or lack of it) in common, who live in an environment which is completely devoid of problems, then it's obvious that we do not live in such a state. True, we think the American way of life is better than others. But we're not so naive as to label it "devoid of problems." Indeed, one of the precepts upon which our way of life is based is the freedom to eliminate problems through majority rule. And we have only to look around us to see that we do have problems to eliminate.

The problem pertinent to this discussion involves the alarming number of deaths and crippling injuries which annually are caused by accidents. If we really want to eliminate it, we'll have to ensure that accidents don't happen. But, realistically, we know that we can expect to be confronted with accident situations throughout our lifetimes, regard-

Learning first aid skills prior to becoming instructors themselves, these California General Tel's Covina personnel watch classmates in demonstration of blanket stretcher.



". . . the true physician is also a ruler having the human body as a subject."—Plato

Practitioners of first aid share an equal responsibility.

WHAT!

first aid and philosophy? . . . . . continued

less of how numerically reduced be the annual ledger. Our responsibilities to each other as fellow human beings, then, don't end with our participation in an aggressive program of accident prevention. We have to know how to deal with accidents once they've happened.

This is where first aid enters the picture. According to the American Red Cross, a significant number of these deaths and crippling injuries occur simply because proper, preliminary, on-the-spot treatment—treatment made before medical help can arrive—is not administered.

What does this mean to us? It means that when we are confronted with an accident situation, we have

Pictured at completion of its advanced training, this first aid class in California General Tel's Lancaster exchange will soon finish instructors class and begin teaching others.

". . . a certain amount of pain or care or trouble is necessary for every man at all times."—Arthur Schopenhauer

With proper application of first aid principles at the right time, we can eliminate much of this suffering.

"Duty! Thou sublime and mighty name!"—Immanuel Kant

What duty can be more satisfying than one which may result in the saving of a life?

"We must be sure . . . that we understand it aright."—John Locke

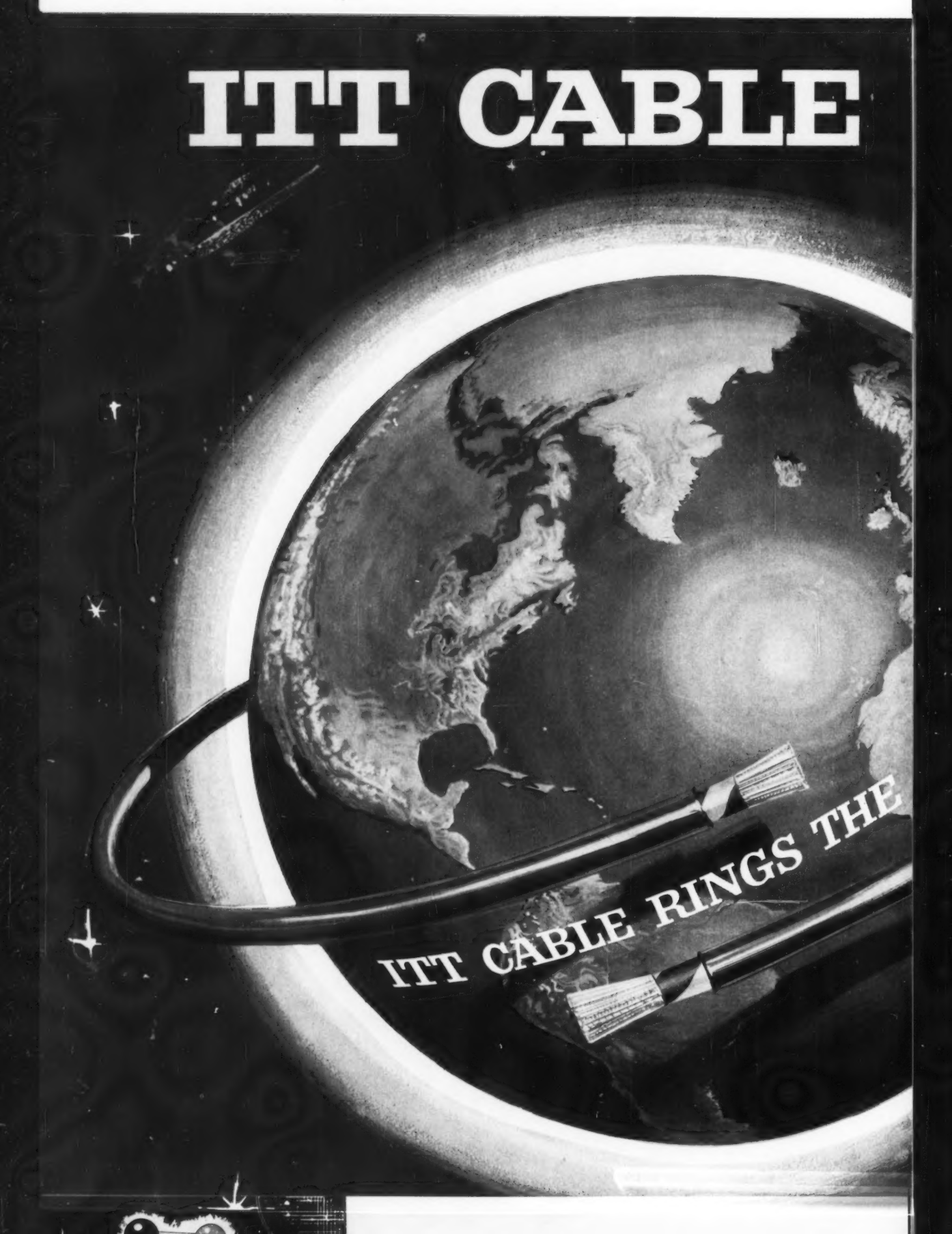
A little first aid knowledge may be worst than none at all. Be sure you know what you're doing!

two possible avenues of action. On the one hand, we can immediately and instinctively apply the first aid knowledge we've stored for such an emergency. On the other hand, we may stand by helplessly and watch the victim or victims die. Too often, these victims are members of our own families. In any event, they are fellow human beings.

Realizing the moral obligation we all have to each other in accident situations, General Telephone Co. of California has assumed an obligation of its own by launching a first aid training program which eventually will reach the majority of its employes. Phase one, the qualifying of Ellsworth Gabriel and Cleo Smelser of General's Safety Department as ARC first aid instructor trainers, was completed in December, 1958. Phase two consisted of the qualification of some 400 additional instructors by Gabriel, Smelser, Max Glasgow and James Goforth (who now also are qualified instructor trainers). These new instructors will soon carry first aid training to others. While this training has been completed, the program will be fully "in effect." It cannot, however, be fully *effective* until it has the enthusiastic support of all employes. The best way to give this support is for each to assume personal responsibility for his proficiency in first aid skills. We must realize that initial training is not enough. Periodic reviews are necessary if we are to be constantly prepared. Remember that untold thousands of dollars are lost each year as the result of the crippling injuries and deaths which might have been avoided with proper first aid treatment. Most important, remember the far greater tragedy mirrored in the grief, desolation and despair these catastrophes bring each year into thousands of homes.

The odds are that one day, at the scene of an emergency, you will be the only person in the world who, at the moment, can prevent an injury from becoming a death. Will you be able to discharge that fundamentally important responsibility?

Reprinted from *California General News*


ITT CABLE
ITT CABLE RINGS THE

Exceeds all standards!

ITT Cable, long in use throughout the United States, is available to all independent telephone companies.

ITT Cable exceeds every exacting standard of telephony, it features unit and layer construction. The copper conductor and paper insulation is furnished by the largest U. S. supplier of these commodities. ITT Cable (aerial or direct burial) is available in all gauges—19, 22, 24 and 26. All reels are disposable to eliminate additional costs involved in returns.

Backed by both Kellogg and the world-wide facilities of International Telephone and Telegraph Corporation, you will find this cable exceeds the high standards of modern communications.

Ask your Kellogg Regional Office for a comparison of technical specifications against your present supplier of cable.

8 billion conductor feet in USE in U.S.A.

SERVING THE LARGEST SINGLE TELEPHONE SYSTEM!

Basic Specifications	26 AWG	24 AWG	22 AWG	19 AWG
Sheath: lead with 1% antimony				
Conductor: pure copper wire				
Conductor Resistance max. ohms/mile @ 20° C	230	145	92	46
Mutual Capacitance 900 cycles A.C., mfd/mile, max.	0.080	0.080	0.090	0.084
Capacitance Unbalance 900 cycles A.C., micro-microfarads	*	*	at 22 AWG: up to 1000′—100; 1001′ to 2000′—150; 2001′ and longer—200 at 19 AWG: up to 1000′—100; 1001′ to 2000′—150; 2001′ and longer—200	
Dielectric Strength: 60 cycles A.C., for 2 sec., volts rms				
conductor-to- conductor-to- sheath	355	355	355	500
core-to- sheath	850	1000	1000	1000

Insulation Resistance: not less than 1,000 megohm-miles at 60°F measured with a D.C. potential of 100 to 550 volts.

*not required, except if adjacent pairs are found with like lengths of twist when the 900 cycle A.C. capacitance unbalance shall not exceed 400 micro-microfarads.

Licensed under patents of American Telephone and Telegraph Company and Western Electric Company, Incorporated

KELLOGG Communications Division of IT

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue, Chicago 38, Illinois
Communications Division of International Telephone and Telegraph Corporation.

Regional Offices and Warehouses: †
CALIFORNIA: 23 Broderick Road, Burlingame, Calif., OXford 7-5780.
GEORGIA: 1594 Southland Circle, N.W., Atlanta 18, Ga., SYcamore 4-2441.
ILLINOIS: 4600 So. Tripp Ave., Chicago 32, Illinois, CLiffside 4-4300.
KANSAS: 7th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
MINNESOTA: 6100 Excelsior Blvd., Minneapolis 16, Minn., West 9-6715.
NEW YORK: 327 North West Street, Syracuse, N. Y., HArrison 2-9251.
OHIO: 1555 West Fourth Street, Mansfield, Ohio, LAfayette 4-6511.
TEXAS: 1515 Turtle Creek Blvd., Dallas 7, Texas, RIverside 7-5191.
EXPORT: 157 Prospect Street, Passaic, N. J., PRescott 3-5100.

† *Major inventories are maintained at four strategic warehouses in New York, Chicago, Kansas City (Kan.), and Burlingame, Calif., to assure ready access and prompt delivery.*

KEEPING UP WITH the latest developments

By RAY BLAIN

THIS IS the fifth article in a series of six in which our technical editorial director describes various new items of equipment of interest to telephone companies. The fourth article appeared in the Apr. 11 issue. Readers desiring additional information on any of the products described may write the manufacturers or to TELEPHONY.

* * * *

Adapter Shank for Wood Bits. (Fig. 74). The new Irwin adapter shank for wood bits fits both hand braces and electric drills. It is now a standard feature on 10 types of car and electrician bits in sizes 4/16 inch to 17/16 inch.

These adapter shank bits come with a conventional taper square shank for use in hand braces only. Simply cut off the taper square and the adapter shank, with its six equally spaced "flats," is ready for use in both hand braces and electric drills. The adapter shank chucks perfectly and a special grinding method guarantees a "true center" which eliminates high speed wobble and run-out.

The adapter shank wood bits speed work because they eliminate the need to have both hand brace and electric drill bit types on the job. They also reduce the number of wood bits ordinarily carried as replacement stock.

Other features of Irwin adapter shank wood bits include one-piece forging from special analysis steel for longer life, high over-all polish, extra sharp and balanced cutting heads with special protective plastic coating.

Fig. 74. Wood bit adapter shank.

Dustless Star Drill. (Fig. 75). A new dustless, self-rotating, air-operated star drilling machine which automatically sucks in any dust and chips it creates when drilling in concrete, marble, and other hard materials, has been announced by Thor Power Tool Co.

Fig. 75. Dustless star drill.

The new star drilling machine is designed for dustless operation in a variety of installations, maintenance, and construction tasks, including telephone installations, wiring, pipe and conduit drilling. The dustless drilling unit eliminates the nuisance and hazard of dust and chips by sucking them, through hollow drilling steel, into the tool and out-ports in the back head into special dust-extracting tanks.

The extractor is three inter-connected plastic cylinders, emptyable cyclone cylinders for dust-collecting and one filter cylinder with cleanable, renewable filter liner, mounted on casters for easy moving.

The new "inhaling" star drilling machine operates in reverse of normal blowing action, utilizing an air-siphoning action to accomplish positive dust elimination without sacrificing operating efficiency. The star drill rotates automatically during drilling.

The star drilling machine is teamed with the Thor No. 50 dust extractor which has over-all dimensions of 18¾ inches by 13¼ inches by 23 inches high and a capacity of .75 cubic feet of chips. The machine has hole-drill capacity up to 1⅜ inches.

•

Portable Electric Drill. (Fig. 76). A ⅜-inch portable electric drill, powered and geared especially for telephone installers' use in drilling wood, masonry, and metal has been developed by the Thor Power Tool Co.

Fig. 76. Portable electric drill.

The new drill can bore holes up to ¾ inch in wood with recommended carbon steel bits up to 18 inches long, designed especially for use where other materials such as rigid composition

board, shingles, plaster, metal lath or nails may be encountered. For drilling in masonry, it will drive the recommended carbide bits up to ½ inch diameter, up to 18 inch length, with shank diameters up to ⅝ inch.

Built with all ball-bearing construction, this is a heavy-duty drill geared to 500 rpm. It is equipped with safety switch, aluminum alloy housing with non-slip finish, ⅜ inch capacity chuck. The drill's weight is 4¼ pounds and it is only 9-5/16 inch over-all length.

This drill is shielded to minimize interference with other electrical equipment. The portable electric tool has universal series wound motor, ac or dc, with standard voltage 115-volt ac-dc.

•

Metal Lopping Shears. (Fig. 77). These new Seymour-Smith metal-handle lopping shears are designed for heavy-duty service. They have the anvil type

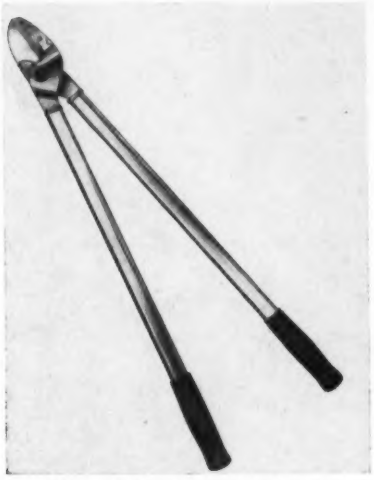


Fig. 77. Metal lopping shears.

cutting action with a capacity of 1¼ inch green branches. The high alloy metal handles have been strength-tested and are hydraulically forced into the blades eliminating the possibility of loosening or misalignment.

•

Hoisting and Pulling Device (Fig. 78). This powerful, portable, hoisting or pulling device—by Griphoist, Inc.—is light-weight (42 pounds) permitting the machine to be carried, set up and operated by one man. Wire rope, ½ inch in diameter, passes through the device in a straight line and does not reel or spool inside the machine. This feature permits cable of unlimited length to be used. Features claimed for the Griphoist include its light-weight, unlimited cable travel, ability to operate in any position or direction, and its ability to stop and hold securely and automatically whenever the motion of the actuating handle is stopped.

The Griphoist's design combines a crank and cam mechanism. Movement of the load is accomplished by two pairs of forged steel jaws that grip and pull the cable. Two operating levers transfer power to the unit. A telescopic handle slips over the operating levers, and manual power it applied with the handle. One of the operating levers is keyed to the crankshaft. A push-pull motion of this lever closes one pair of jaws and pulls them backward. At the same time, the second set of jaws is operating and slides forward to repeat the gripping and pulling cycle. The jaws are self-engaging; the weight of the load actuates the jaws and the heavier the load, the tighter the grip. The other lever is used to lower or release the cable tension. This is accomplished by the same opening, sliding forward, and closing of the jaws.

The load is automatically and securely held whenever the motion of the handle is stopped. The nominal power of the Griphoist is 3,300 pounds, which can be increased. By two-parting the line, it becomes a three-ton hoist, and with the use of sheaves, loads of six to 10 tons can be handled. Application of this power is achieved with a 77-pound effort on the telescopic handle. One complete stroke of the handle moves the cable 2¾ inches at the nominal load which results in approximately 10 feet of travel per minute.

Another model Griphoist is designed for extra-heavy lifting and pulling. This model is equipped with a ⅝ inch wire rope and has a conservative rating of three tons. It handles 12 tons or more when used with pulley blocks.

•

Electric Hoist. (Fig. 79). Three new models of the Chisholm-Moore Lodestar electric hoist extend the capacity range of two tons and double the lifting speeds available in the one-half and one-ton sizes. Available are the Model

Fig. 79. Electric hoist.

R with a capacity of two tons and lifting speed of 8 feet per minute, the Model L of one-ton capacity at 16 feet per minute, and Model J of ½-ton capacity at 32 feet per minute. This now provides a greater selection of lifting speeds and of capacities ranging from one-eighth to two tons.

Safety is a feature of these hoists. Power interruption sets the electric brake to lock the load. The low-voltage push buttons are encased in a rugged plastic housing. The lower hook blocks are fully enclosed. The flexible link chain of alloy steel is strong and tough. The jam-proof chain guide protects both men and materials. Upper and lower safety limit switches guard against careless operation.

•

Light-Weight Puller. (Fig. 80). This new Chisholm-Moore puller is a portable, light-weight compact device operated by a ratchet handle. The use of aluminum alloy castings has reduced the weight considerably with no sacrifice of strength. The three-quarter-ton size weighs 14 pounds.

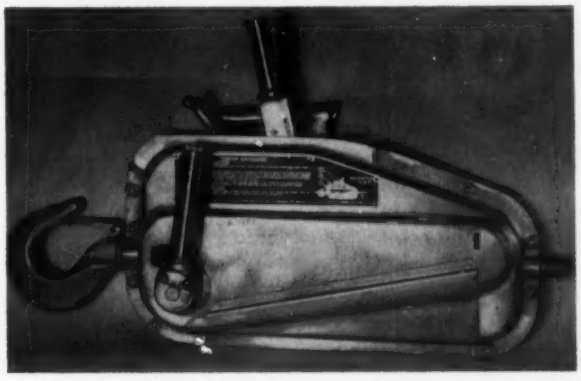


Fig. 78. Hoisting and pulling device.

Fig. 80. Light-weight puller.

This device is designed for use in pulling any object in a horizontal or vertical direction or at any possible angle. If necessary, the unit can be used in an upside down position. An automatic friction type load brake holds the load securely at any point. The flexibility of the "Cm-Alloy" welded chain makes the puller suitable for a greater variety of applications and also adds to the convenience of handling and storing the unit itself.

•

Testing Holding Power of Land Anchors. (Fig. 81). Development of a new method of establishing holding strength of portable land anchors has been announced by W. C. Dillon & Co., Inc. The land anchor is a device designed to provide a means of securing cables or ropes in areas where no other anchor points are available.

In the test, the land anchor is secured by spikes driven into the ground at varying angles. Load is applied by winch. A Dillon dynamometer, positioned between the winch and a holding device instantly measures in pounds the amount of force applied, thus establishing holding power of the land anchor in any type of the soil tested. This device could also be used to test the holding power of anchors used in line construction.

Fig. 81. Testing holding power of land anchors.

This is but one of many tests that can be performed by portable Dillon dynamometers in the plant or in the field. Available in 13 capacities from 0-500 to 0-100,000 pounds, the dynamometers quickly and accurately measure tensile, compression, torque or weight. Individually calibrated and certified accurate, these portable instruments are furnished complete with red maximum pointer, shackles and safety glass crystals. Available with either 5 or 10-inch diameter dials, the dynamometers are fully protected against accidental overloading.

Lineman's Adjustable Climber. (Fig. 82). These Bashlin climbers are made of forged steel with an aluminum alloy adjustable top sleeve. One model is a right and a left with a replaceable gaff. Another is the same style in the straight pattern.

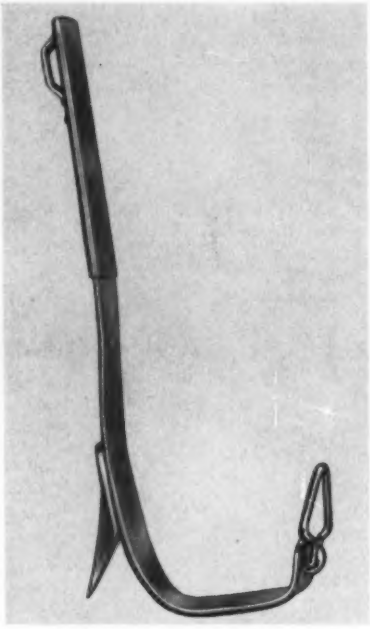


Fig. 82. Lineman's adjustable climbers.

The forged steel leg irons are made of a high alloy steel which combines toughness and strength without critical heat treatment. This insures the shank strength against softness and brittleness.

The gaffs are made of the same high quality steel. The gaff can be replaced by removing two self-locking hex-socket flat head screws. Replacement gaff sets are furnished with gaffs, screws, and the correct wrench.

•

Safety "S" Ring Lineman's Belt. (Fig. 83). Bashlin's new Safety "S" ring is designed for safety and comfort; combining the proved safety features of the off-set Double Bar "D" ring with the completely curved snap section which eliminates the possibility of roll-out. The reverse curve of the new ring places the engaging section in the same position as the time proven off-set "D" ring.

The outward curve on the front section of the "S" ring positions the engaging section away from the body. This is necessary to enable the lineman to engage his safety snap without using both hands. A flat section in this area permits the "D" ring to lie flat against

Fig. 83. Safety "S" ring lineman's belt.

the body and creates a safety hazard which was eliminated many years ago when the off-set "D" ring was made available. The new Safety "S" "D" ring eliminates both hazards and can be installed on any body belt.

•

Electric Soldering Iron. (Fig. 84). This is a new production type electric soldering iron introduced by American Electrical Heater Co. It is light in weight to assure minimum operator fatigue. It is perfectly balanced for precision soldering. It has a cool, comfortable, positively-locked-in-position handle that affords added protection for

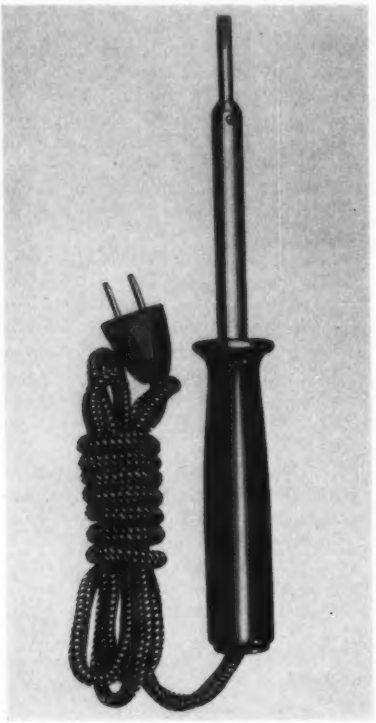


Fig. 84. Soldering iron.

the user and proper transition from hot element to relatively cool handle interior. It is also equipped with a separately replaceable heating element of superior construction and top quality insulation. A safety-flare on the newly designed handle protects the operator's hand from accidental contact with the casing of the iron.

•

Angle-Type Electric Soldering Iron. (Fig. 85). This American Electrical soldering iron is equipped with an angle-type casing; otherwise, it is identical to that shown in *Fig. 84.* It is designed and intended for use on soldering jobs difficult to accomplish with conventional straight-casing soldering irons. Its shape, design and perfect balance assures efficient operation and materially minimizes the user's effort and fatigue on this type of work.

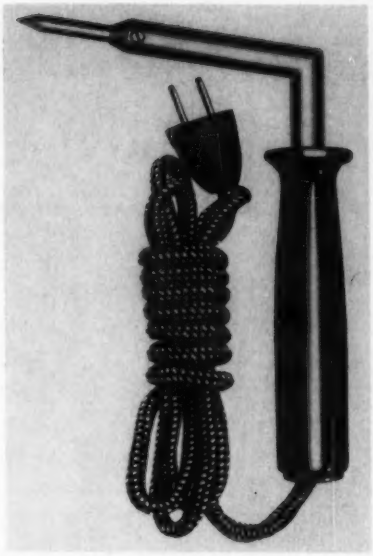


Fig. 85. Angle-type soldering iron.

•

Collapsible Tool Bucket. (Fig. 86). The body of this sturdy bucket, manufactured by Mine Safety Appliances Co., is constructed of No. 4 duck impregnated for mildew resistance. The inside pocket is bound and double-stitched in place. The bottom is a single piece of molded leather which has been impregnated to resist wear, rot, mildew and fungus growth. The top rim is of heavy-weight molded fibre treated to withstand all weather conditions. The one-half-inch Manila rope handle is hand spliced.

Fig. 86. Collapsible tool bucket.

The entire unit can be telescopically collapsed for convenient storage.

•

Nylon Fabric Tool Belt. (Fig. 87). This Klein belt is constructed of multiple layers of nylon which are uniform in quality and possess great strength and flexibility. It has been designed to provide maximum comfort and safety. It is equipped with plier pocket, knife snap, tape thong, glove pouch ring, tool loops and lag wrench holder. It is available in standard sizes 36, 38, 40, 42, 44 and 46 inches.

Fig. 87. Nylon tool belt.

•

Cable Slitting Tool. (Fig. 88). This Klein tool has been designed to slit the insulation from switchboard type cables. The handle is cast-aluminum, light in weight and conveniently grip-shaped to fit the hand. The knife is tempered steel which may be sharpened and is easily removed for replacement.

Fig. 88. Cable slitting tool.

The tool quickly slits tough insulation from a few inches to as many feet as desired. It will not damage the conductors inside of the outer cable covering.

•

Lineman's Belt Accessories. (Fig. 89). The proper lineman's belt accessories, such as these Klein items, can prove a real labor saver. The tape thong is 10 inches long with a fiber crossbar and keeps a roll of tape conveniently at hand for use at all times. The plier keeper permits one to know where the pliers are and can be located without looking. The knife snap and

(Please turn to page 43)

THE Operator's Corner

By MAYME WORKMAN — TRAFFIC EDITOR

OCCASIONALLY it is well for us to indulge in self-analysis to determine if we are giving a fair return for the check we draw each pay day.

What gave the writer this idea?—A church bulletin entitled "Doing A Dependable Job." According to the bulletin, "A readily recognized mark of greatness of character is the quality of dependability. In any kind of job, large or small, this is the necessary foundation of confidence and trust. It is a necessary condition of any job being efficiently or even successfully concluded."

The bulletin contained a questionnaire on dependability in three areas of common experience. The first area was "Punctuality." It contained the following queries:

(a) Am I habitually late for work?

(b) Do I dilly-dally and put off the accomplishment of small but necessary tasks on the job?

(c) Is my lack of punctuality so pronounced that I am habitually late for appointments and meetings?

(d) Am I easily sidetracked from definite obligations to others by chance meetings or conversations or passing interests?

(e) Can I recall that I have frequently been the cause of impatience and anger in others because I made them wait for me?

The second portion of the bulletin was devoted to "Honesty":

(a) Have I caused loss to my employer by my careless use of equipment and machinery?

(b) Have I padded my expense account in a way that my conscience told me was completely unjustified?

(c) Have I tried conscientiously to give a full day's work for a full day's wage?

(d) Have I lost a lot of time for which I was being paid just by standing around idly and doing nothing?

(e) Has my work been slipshod because of the careless, half-hearted way in which I went about it?

The third item in the questionnaire was "Responsibility":

(a) Have I tried to develop a genuine sense of responsibility to my employers and to the public I serve on my job?

(b) Does this sense of responsibility cause me to protect the legitimate interests of those who have shown trust in me by hiring me?

(c) Am I a responsible person in setting a good example for those with whom I work, particularly the younger people in the organization?

(d) Have I sincerely tried to be patient and charitable towards the faults and failings and whims of employers and fellow employes, realizing that I also have faults and failings of my own?

Perhaps after you have read the questions, you will find yourself wanting in some respects, as did the writer. This is not bad—it is good, for when we know our weaknesses, we are in a position to do something about them.

Certainly we should be as critical of ourselves as, on occasion, we are prone to be of others. We must understand ourselves if we wish to be understood by others. The person who makes a close analysis of herself, who finds out her own faults, records the ground she has gained, and makes a note of the position she has lost, who gets thoroughly acquainted with herself has gained more knowledge than she could ever gain in a scientific study of anything.

Some girls seem to be popular with all the girls in their office. They are not always the most attractive person, nor the best dressed, but they are never lacking in friendship, just as there are other girls, not so popular, and they are frequently the unhappy ones, making them withdrawn in their manner.

A friendly, kind, unselfish person draws other people toward them like a magnet. To have a friend, we must be a friend. If an operator asks a favor of you, and you always refuse, with no apparent reason, she naturally will not favor you, in a similar situation.

If we, as individuals, will give, as readily as we take, this will be a happier world for us all.

Loss of Freedom In Federal Control

"Rome fell because the nation collapsed spiritually; because a hardy race succumbed to the insidious poison of the idea that 'the government will do it'; because rulers bought power at home and favor abroad by gifts of treasure and food; because integrity and thrift and industry gave place to corruption and waste and indolence; because the nation bartered its ancient heritage of hard-won freedom for the specious ease and false security which a corrupt government promised it."—FRANKLIN BLISS SNYDER, *former president of Northwestern University.*

Traffic Questions

(1) In recording a call charged to a third telephone, may the central office name be abbreviated on the toll ticket?

(2) If an outward operator receives a request to charge a long distance call to a third telephone, and the call is from a paystation, how should she proceed?

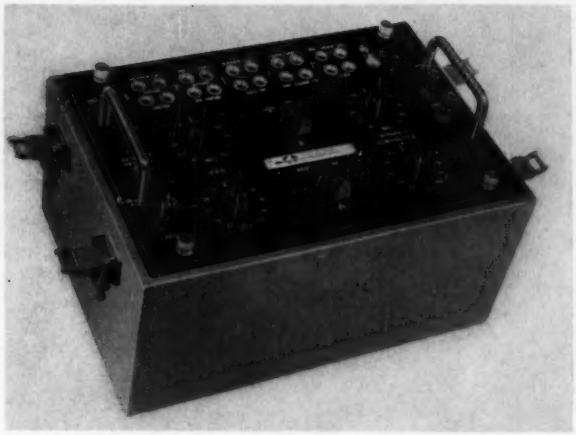
(3) What is the basis of timing on subsequent attempts initiated by the operator?

(4) What is the basis of timing on WH party calls?

(5) On paystation calls where coins are collected after the called telephone or party is reached, and before conversation starts, when should timing start?

Answers are presented on page 63

A Portable Test Hybrid Set



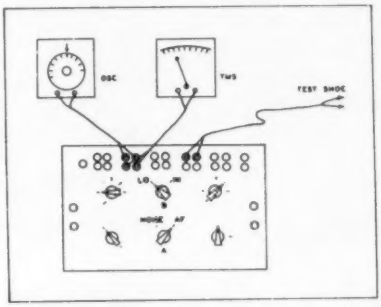
By HAROLD B. McKAY

DIRECT DISTANCE Dialing (DDD) and data handling have made transmission a matter of major importance in the telephone plant. DDD has made it possible for a customer to dial up a call which may go through several trunk linkages. If any one of these has poor transmission, the call will be unsatisfactory. On a dialed call, there is no operator to isolate the defective link and report the trouble.

Therefore, continuing routing transmission tests must be made to discover defective components. In addition each circuit must be brought up to certain standards and maintained at that level. Central offices which work as tributaries or tandems to other offices must reckon with "via net loss"—the loss through their own facilities—as well as the loss on the connected lines.

Data transmission for electronic business machines requires that telephone lines be corrected for frequency response, phase delay and certain types of noise conditions. In the past, most transmission test equipment has been in the hands of the large companies, and has not generally been owned by Independents. However, as the business becomes more electronic, most test equipment is being made by electronic manufacturers, and is available for purchase by anyone.

A number of instruments are used in transmission measurements. Among them are noise generators, noise measuring sets, oscillators, transmission measuring sets, and an assortment of telephone parts such as repeat coils and condensers.



The hybrid set is connected in this fashion to an oscillator, a transmission measuring set, and by means of a test shoe, to the circuit to be tested.

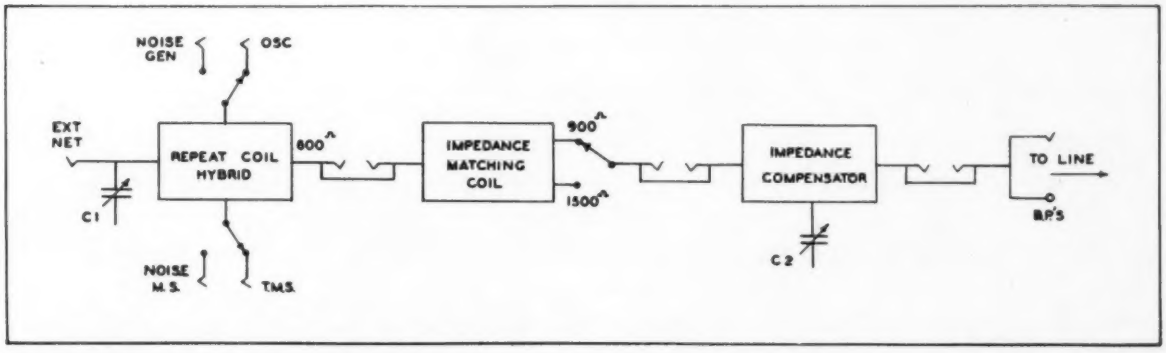
Among the tests made on a line facility are return loss, singing point, and impedance compensation. Such tests are used when putting a new facility into service, or when adding repeaters, inproving transmission or testing trouble conditions.

Much of the test equipment used, such as oscillators and measuring equipment is readily available from a number of manufacturers, but the telephone man has needed one more piece of equipment—a unit to patch all of this gear together. This need is now being met by the portable test hybrid equipment which has been developed and now manufactured and sold by Airtronics International Corp. of Fort Lauderdale, Fla.

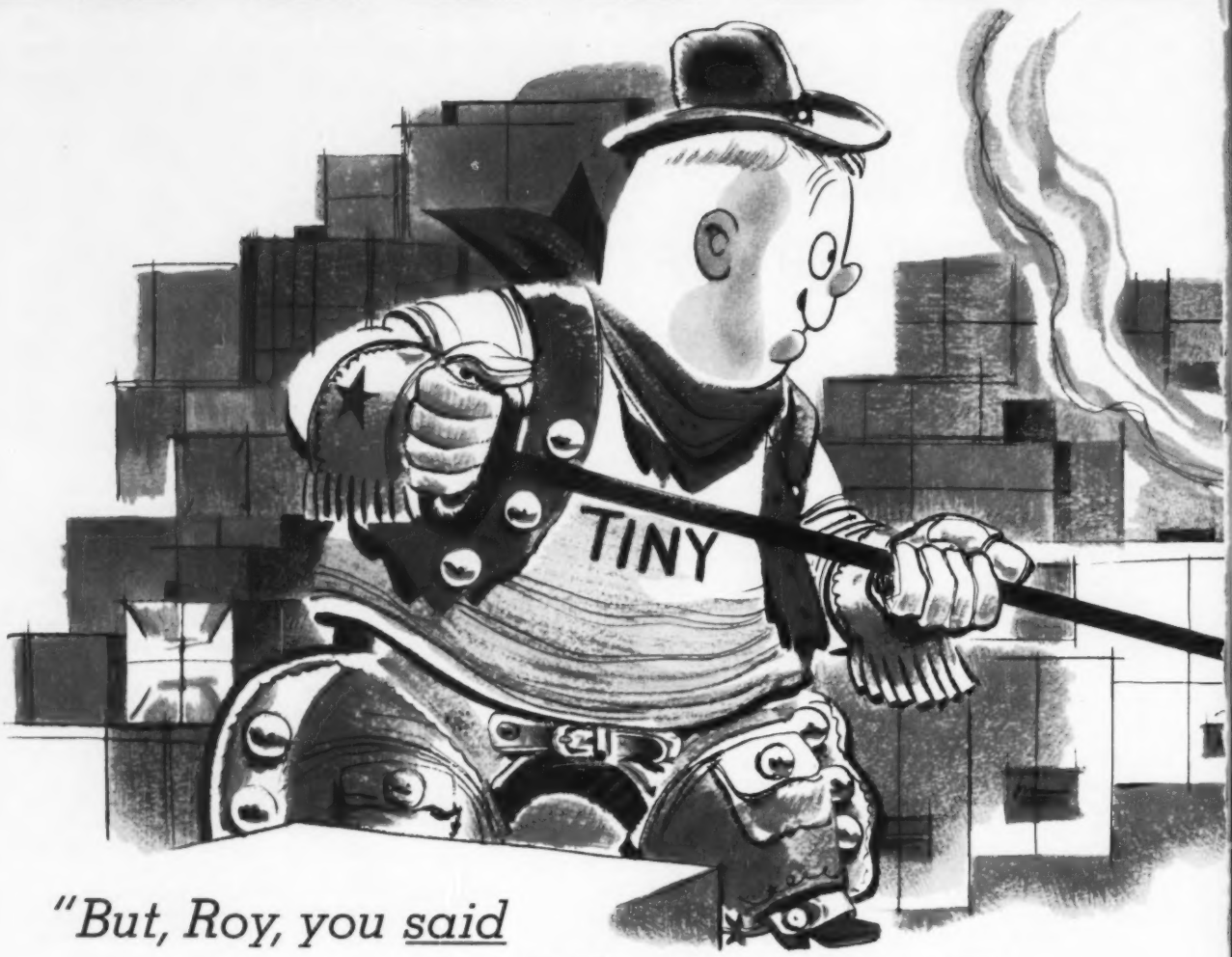
It is made to match telephone cable pairs, and telephone test equipment, such as Western Electric noise measuring sets. Prior to the availability of this portable hybrid, the transmission man has had to patch together a haywire lash-up of coils, condensers, resistances and cords—often in a messy tangle. The new set is well equipped with jacks, so that test setups may be patched together with standard cords. Binding posts are also available for connection of an external network, or for wire connection to a line.

The test set contains, within itself, the auxiliary components which must

(Please turn to page 48)



The portable test hybrid set contains the above components. Plugs and jacks give access to any part of the set. Output is connected to jacks and binding posts. (Drawings by Victor Willard.)



"But, Roy, you <u>said</u>

AE handles Famous

Cattle brands on your supply order? To Tiny, this idea seems very logical. You see, the boss always says that AE handles only famous brand supplies. Poor Roy—if he has enough patience, he may be able to explain the difference between famous brands and a western-style round-up.

AE doesn't sell cattle. But, we do handle hundreds of dependable, famous brand supply items. You see, we want to do supply business with you...your son...and even your grandson! And, the best way we can do this is to give you *prompt delivery* from a *large stock* of *famous brands*. Please give us a call. Give us a chance to prove that—at AE, you get all 3.

Brand Supplies!"

warehouses:

Northlake, Illinois Fillmore 5-7111	2915 Moore St. Richmond 21, Va. ELgin 8-9280	2360 N. W. Quimby St. Portland 10, Ore. CApital 3-7244	158 Corliss Avenue Johnson City, N. Y. SWarthmore 7-8507	2021 Main St. Kansas City 8, Mo. HArrison 1-7575

AUTOMATIC ELECTRIC

SUBSIDIARY OF GENERAL TELEPHONE & ELECTRONICS

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

THE AT&T's *Long Lines* magazine reports the arrival of a new electronic computer at Mt. Kisco, N. Y. Electronic data processing will be used to help gather and analyze the figures necessary to provide more and better communications service. The jobs the computer will perform for this company in time will affect all departments and will lend a hand in many phases of the business.

It will assist in the complex job of circuit provision, helping to have the right number of circuits at the right place, and at the right time. The machine will examine data on all long distance messages periodically. It will thus aid traffic engineers to determine where additional circuits are required. It will help plant extension engineers to decide what kind of circuits will be required and where to construct them.

The system will help with traffic peg counts and will print the results of such operations in useful form.

It will help produce traffic force assignment sheets every week. At first, this job will be done only for New York. Other traffic offices will follow.

The computer will also assist in accounting work, preparing financial reports, cost reports and reports of taxes, estimates and billing. It will make certain statistical reports for the entire Bell System that will make it possible for AT&T to know more about its subscribers and the service they require.

For the plant department, the computer will help assess the quality of the service they provide. It will aid each central office by summing up the number and the nature of outages and the result of maintenance work.

In addition, it will assist the accounting department in the complicated business of pricing and billing individually tailored private line services. And, in doing all this, it will consolidate many files by storing information compactly and economically on magnetic tape.

One of the main reasons for installing the new system is that it will reduce costs. By a speedy and accurate assessment of circuit provision, AT&T expects to make substantial savings each year in paper work and even greater savings in equipment investment as the computer helps to provide the right circuits in the right place at the right time.

In thinking about electronic data processing (EDP), however, it is important that all bear in mind that it is a tool. It cannot do any jobs that humans could not accomplish if given enough time and the patience. The point to remember is that the computer is fast—it can perform 8,000 additions per second—and it will relieve engineers of many tedious chores and mechanical calculations, thus making available more time for planning and other creative work.

The computer cannot use judgment. Humans must give it information and tell it what to do with that information. This is why, for over two years, AT&T Long Lines men and women have been writing "programs" for the machine.

A program is a set of detailed instructions in language usable by the computer, telling it how to attack information step by step to achieve the desired results. Programs themselves are a difficult and time-consuming part of EDP, but because they can be used over and over again to process data, the method pays off in the long run.

Because judgment is the property solely of human beings, those critics who claim that machines are taking over everything are simply barking up the wrong tree. Man has always prided himself on his ingenuity in finding out "how" and "why." Computers are another step in the evolution of our ingenuity; they are another tool in our quest for greater and more certain knowledge.

•

It is claimed that in the past 100 years, population of the United States has multiplied seven times and production has multiplied 25 times.

Further, there are more jobs per 1,000 population today, with machines doing 94 per cent of the work, than there were in 1850 when machines handled only 6 per cent of the work.

•

An American has more food to eat than a man in any other country on the globe, and more diets to keep him from eating it!

•

What is an engineer anyway? Ask a hundred people that question, and it's a safe bet that most of the answers would be wrong. For it is almost an axiom of their profession that only engineers know what engineers do! So states the *New Jersey Bell Magazine*.

Engineers are the builders and the planners whose skills have helped make ours the most powerful industrial nation in history. An engineer is an "applier." He takes new inventions and new methods, or even old ones, and applies their use to great new highway networks, satellite projects, defense operations, and, of course, to communications.

From these engineers come the methods, plans, and judgment so vital to the decisions on how to put the investor's money to most efficient use in the creation of the best possible communications system, not only for today, but also for the future.

Telephone engineering is, after all, a science embracing many fields, from building construction to trunk networks, from Direct Distance Dialing's cross-country miracles to inter-town dialing for customers served by community dial offices.

These are only a few of the many facets of New Jersey Bell's business operations that have been steadily improved by the work of their 600 engineers whose aim is always to bring to the customers the dependable, easy-to-

use, rapid, and reasonably priced telephone service the customers have come to expect.

•

It is claimed that having great aims is important but so is knowing when to pull the trigger.

•

We note that new filling stations presently being constructed provide underground conduit in the concrete apron to serve outdoor-type paystation booths. These conduits accommodate both power and telephone lines and provide a neat and serviceable installation.

It is a pleasure to note also that paystations are now a standard part of all new stations.

•

The Bell System's blue bell seal is celebrating its 70th birthday. It was designed by Angus Hibbard back in 1888. The seal was originally intended to call attention to public "long distance" telephones.

At that time, some instruments, adequate for local service, were not satisfactory for transmission over the early long distance lines, so paystations equipped with special long distance telephones were provided.

Then by 1895, as local equipment in most cities had been improved to where it could be interconnected with long distance equipment, the blue bell sign began to be widely used with the lettering: "Local and Long Distance Telephone."

Just when the emblem began to be used in the form of a seal, imprinted on stationery and included with the American Telephone & Telegraph Co.'s signature on advertising, is not known. An advertisement for September 1908, carried the bell with the inscription: "Local and Long Distance Telephone," enclosed within a double circle in which were the words: "The Bell System uniting 4,000,000 telephones."

In 1922, the seal was simplified by removing the lettering "Local and Long Distance Telephone," and placing the words "Bell System" on the bell. It continued in that form until 1939 when the top of the bell was streamlined, the shoulders squared and a more modern style of lettering was adopted—transforming the seal into the version in use today.

•

We are informed that if the earth's population continues to multiply at the present rate for the next 2,000 years, the people on earth will weigh more than the planet itself.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. Could you recommend a good book for a beginner on pulses as used in the electronic field?

A. It is recommended that you obtain a soft cover book of 176 pages, "Basic Pulses," which can be procured from TELEPHONY for $3.50.

This book is quite comprehensive in its coverage. The knowledge conveyed by it can be of value in all activities within the electronic art.

The highly pictorial approach, accompanied by only as much text as is deemed essential for maximum clarity, not only makes this book understandable, but easy reading as well.

•

Q. We have heard of occasional fatal accidents being caused by tree trimmer wooden poles coming in contact with high voltage wires. Is it possible to use an insulated handle of some type on a tree trimmer so that this hazard may be eliminated?

A. There is a laminated phenolic plastic pole, said to be well insulated and safe, and which is available for use in a tree trimmer to replace the wooden pole.

It is claimed that this plastic pole is 10 times stronger and gives 10 times the protection of wooden poles. This pole is available in lengths up to 16 feet.

•

Q. When a carrier system is operated by commercial power, how is service maintained during power interruptions?

A. Carrier supply units are available which are designed to provide for carrier or repeater operation, 130 volts, 0.5 ampere or 1.5 ampere plate current from a wide variety of input voltages. When the commercial power is interrupted, these units automatically transfer to a built-in line vibrator which operates from the central office battery.

Excellent regulation is maintained on both ac and battery operation even though battery supply voltages vary within the ranges given for a 48-volt unit or those given for a 24-volt unit. These units are housed in steel cabinets and can be mounted on the wall or in a 19-inch relay rack.

•

Q. What means should be taken to protect workmen in manholes from explosive gas or oxygen deficiencies in an extremely cold climate?

A. We suggest that you consider the use of ventilating heaters. In summer, this unit forces 300 to 800 cfm of fresh air into the manhole.

In winter, through the use of a specially designed combustion chamber and heat exchanger, the ventilator becomes a ventilating heater, blowing fresh heated air into the manhole in a matter of seconds. This is safe, breathable air with no harmful products of combustion.

These heaters may be obtained to operate on L.P. gas (propane) from portable generators or from an electric extension cord.

•

Q. Is it true that nylon belts for linemen are now replacing leather and if so what advantages are claimed for them?

A. Yes, it is true that lineman's belts can now be obtained that are constructed of multiple plies of nylon that are uniform in quality and at the same time have great strength and flexibility. Leather loses its strength when not used and must be dressed at regular intervals to preserve it.

Nylon fabric outwears leather and never needs any dressing or special care and, therefore, provides long and safe life.

•

Q. Can you please furnish us any information on the so-called flameless blow torch?

A. This is an electrical device designed to provide quick heat to a stream of air up to 1000 degrees F. without flame. The temperature is varied by an air intake adjustment. The motor in this device is 110-120 volt ac-dc.

AUTOMATIC'S NEW TYPE

can be mounted on any

Today's modern homemaker appreciates the convenience of a kitchen phone. She particularly likes the phone that doesn't get in her way.

Teenagers, too, like the Type 83. They can *be comfortable* when talking because it mounts in such handy places. And, daughter gets her choice of 10 colors.

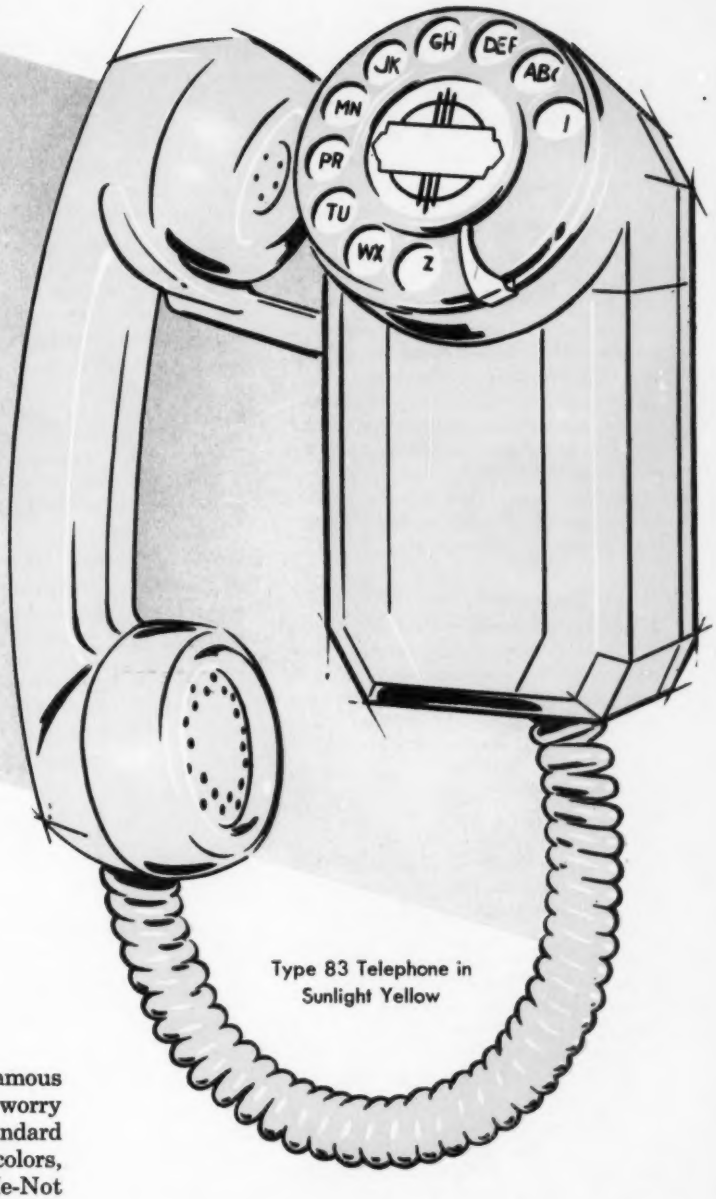
YOUR SUBSCRIBERS will go for Type 83 extensions in a big way! This new *compact* telephone can be mounted on any vertical surface—wall, column, side of desk, etc. Requires only 7" x 3¼" of space. Saves valuable working space on desk and table tops.

The Type 83 Compact Telephone uses the same circuit and basic components as Types 80 and 90, but without ringer. As an extension telephone, it requires only two wires to its associated mainline instrument. It can also be used with a ringer box.

83 compact telephone...

vertical surface!

In the workshop, dad has his Type 83 mounted right on the workbench. He never has to run upstairs to make or answer a call—the phone is right at his fingertips.



Type 83 Telephone in Sunlight Yellow

Type 83 Telephones give your subscribers famous Type 80 transmission. And, *you* don't have to worry about stocking special parts—this phone uses standard components! There's a choice of 10 beautiful colors, too: Gardenia White, Camellia Pink, Forget-Me-Not Blue, Sand Beige, Garnet Red, Jade Green, Classic Ivory, Dawn Grey, Sunlight Yellow and Turquoise. For prices and ordering information, write: *Automatic Electric Sales Corporation, Northlake, Illinois. Or call, Fillmore 5-7111.*

AUTOMATIC ELECTRIC

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

Courts and Commissions

Split Decision Grants Raise To General of Florida

A $1,620,495 rate increase, effective Apr. 6, was granted to the General Telephone Co. of Florida, Tampa, in a split decision by the Florida Railroad & Public Utilities Commission (TELEPHONY, Aug. 30, 1958).

The company will net $765,457 out of the amount granted. The remainder will go to pay federal and state taxes.

Originally, General had requested 4 million dollars in increased rates.

It had asked for the raise on the grounds that it had to have a greater return on its investment to attract capital for a proposed 25-million-dollar expansion program.

Commissioners Alan Boyd and Wilbur King voted for the increase. Chairman Jerry Carter dissented.

Rule Deferred Tax Savings Must Be Passed on in N. Y.

The New York Public Service Commission has recently announced a new cost accounting policy that will require utilities using the deferred payment provisions on depreciation of the federal income tax code to charge as expenses only the actual taxes they pay.

This ruling means that the savings in tax must also be considered as savings for rate-making purposes before the commission and passed on to subscribers.

The tax savings according to the commission, must be deposited in a reserve account and the funds may be used for capital expansion purposes but not for dividends. Any excess must be channeled back annually to help pay the next year's tax bills.

The commission also indicated that it may charge any utility, which is asking for an increase and has not taken advantage of deferred depreciation, the amount it might have saved and adjust its rate schedule accordingly.

The income tax laws permit companies to pay lower taxes during the first few years a facility built after 1954 is in operation, by permitting them to depreciate the value of the facility and amortize its cost more rapidly in the early years of its existence, and more slowly later. The normal "straight line" method writes off a set amount of the facility's value every year throughout its life.

Companies claim that the tax saving resulting from accelerated depreciation is not really savings but "deferred taxes" that will have to be paid when the depreciation rate is slowed down.

The commission's unanimous ruling says, in effect, that because utilities are operating in an expanding economy, they are realizing tax savings steadily as they expand their plants and should be required to account for them to their subscribers.

Increased Rates Granted To Nebraska Company

The Clarks Telephone Co. was authorized on Apr. 3 by the Nebraska Railway Commission to increase rates and borrow $152,000 from the Rural Electrification Administration for a dial conversion program.

Rates were increased as follows:

	Old	*New*
One-party business	$3.00	$8.25
One-party residence	2.50	5.50
Rural	2.50	4.50

The company now serves 270 subscribers and proposes to increase this to 303 under the improvement program.

The Ulysses exchange will be converted to automatic operation and its distribution system rehabilitated.

Extended area service (EAS) facilities to Staplehurst will be improved.

Files Suit in La. Against Proposed Number Change

Southern Bell Telephone & Telegraph Co. on Mar. 25 was ordered by Louisiana Civil District Court Judge Rene A. Viosca pending a hearing, not to suddenly change a telephone number which had been incorrectly listed.

The Louisiana Bonding Agency had filed suit on Mar. 25 asking that their number, TU 2075, not be changed.

Peter A. Hand, a partner in the company, explained that in the March 1959 issue of the telephone directory, the bonding agency's number had erroneously been listed in the ad of one of its competitors.

When the Louisiana agency's number is dialed it rings, but Southern Bell told the agency that it would change the agency's number to avoid confusion. The number was listed correctly in an ad in the yellow pages.

The suit stated:

". . . petitioner (the Louisiana Bonding Agency) is prepared to show . . . that the type of individuals with whom it deals in the bail bonding business are not adaptable to any sudden change of telephone numbers, and that as the largest percentage of your petitioner's business is the bail bonding business, your petitioner would suffer serious financial losses and irreparable injury if said number was changed before the publication of another telephone directory."

Mr. Hand also pointed out that the competitor's number is correctly listed.

Southern Bell also was directed by the court to show cause on Apr. 10 why an injunction should not be issued barring change of number.

Rate Increase Is Sought By Arkansas Company

The Allied Telephone Co. of Little Rock asked the Arkansas Public Service Commission on Apr. 2 for an increase in rates.

The company serves 28 communities in central and southern Arkansas. Allied recently withdrew a petition to raise only rural toll charges.

The company seeks an additional $94,293 through the rate increase. It would raise one-party business rates from $7.75 to $9.50 and one-party residence rates from $5.00 to $6.00.

Allied said it earned less than one per cent last year on its investment of $2,223,578, "net book value."

The commission set a public hearing

on the request for Apr. 20. Allied wants to put the new rates into effect May 1.

The company now has underway a program to convert its entire system to dial service, and the program is scheduled for completion by the end of 1960.

Mo. Company to Request Raises for Two Exchanges

The A&M Telephone Co., Springfield, on Mar. 19 announced that it was applying to the Missouri Public Service Commission for a rate increase for Osceola and Mansfield. Other exchanges served by the company were not included in the new rates, to be effective July 1, because they have less than 400 subscribers.

Present and proposed rates are as follows:

	Old	*New*
One-party business	$6.00	$7.50
One-party residence	4.00	5.00
Four-party residence	3.00	3.50
Eight-party rural business	5.00	6.00
Eight-party rural residence	3.75	4.25

The A&M company says that more than $250,000 has been spent since 1955 to provide Osceola with "efficient and dependable service in keeping with the rapid growth here."

In this period according to Raymond Grimes, district manager, the company has "built a new automatic central office building and installed the most modern automatic equipment available."

Pa. Independent Seeks $8,400 in Added Revenue

Chapman Lake Telephone Co. has filed a new schedule with the Pennsylvania Public Utility Commission proposing an estimated rate increase of $8,400, it was reported on Apr. 9. The raise would be effective June 1.

The company serves 368 subscribers.

Present and proposed rates are as follows:

	Present	*Proposed*
One-party business	$4.00	$7.00
Multi-party business	2.75	5.25
One-party residence	3.00	5.00
Two-party residence	2.50	4.00
Four-party residence	2.25	3.00
Multi-party residence	2.00	3.50

Conn. Relocation Bill

A bill setting up a formula for the payment of costs of relocating or removing public service facilities from streets or rights-of-way in redevelopment projects was passed by the Connecticut Senate and sent to the House. The measure provides that half the cost would be paid by the redevelopment agency and half by the utility firm.

Bill Validating Franchises Passed by N. C. House

Legislation intended to validate present and future franchise agreements under which cities and towns get free or reduced rate telephone service was passed by the house of representatives of the North Carolina Legislature on Apr. 10 and sent on to the senate (TELEPHONY, Apr. 11).

The bill would have the effect of making valid such agreements between the Carolina Telephone & Telegraph Co., Tarboro and a number of eastern North Carolina towns.

In granting the company a rate increase recently, the North Carolina Utilities Commission ruled out such service agreements, declaring them to be discriminatory and illegal, in that they constitute a tax on the company's right to do business.

Several North Carolina municipalities have appealed to the courts from the commission ruling.

State Taxation for Co-ops Under Terms of Alaska Bill

A bill to exempt telephone and electric cooperatives from municipal taxes but to impose a gross state revenue tax on their utility operations was passed by the Alaska House of Representatives and returned to the senate for agreement on amendments.

As amended, the bill would leave untouched for the present a seven-year limit in which a property owner can seek action against a utility that puts lines across his property.

In the original senate version of the bill, this time limit was reduced to two years for cooperatives. A separate bill calls for a two-year limit applicable to all utilities. This separate bill is expected to pass both houses.

Under terms of the taxation bill, cooperatives would be paying a maximum of 2 per cent on gross revenue to the state starting in 1960. The money would in turn be refunded within the local incorporated district in proportion to the amount of service provided within each area.

Ask Increase in Wis.

The request of the Hillsboro Telephone Co., for authority to increase its rates was to have been heard by the Wisconsin Public Service Commission on Apr. 6.

General Buys Majority Share In York (Pa.) Tel. & Tel.

General Telephone & Electronics Corp. has acquired for cash 70 per cent ownership of the York (Pa.) Telephone & Telegraph Co.

General Telephone has offered to purchase the balance of ownership from minority stockholders, and a letter to minority stockholders will be issued shortly.

A stockholders' meeting was to have been held on Apr. 13, at which time a new board of directors was to be elected. It was anticipated that the following slate would be offered:

George B. Rudy Jr., Fredrick D. Dempwolf, Fredrick C. Rahdert, H. W. Meyer, L. F. Shepherd, Robert Buzzard.

The board of directors will hold a meeting later in April, at which time officers of York Telephone & Telegraph Co. will be elected for the ensuing year.

Obituaries

SAMUEL FREDERICK NIXON, 71, of Westfield, N. Y., died on Apr. 9 in the Clifton Springs (N. Y.) Sanitarium following an illness which had confined him to the sanitarium since Jan. 24.

Mr. Nixon was a graduate of Cornell (class of 1911) and of the University of Buffalo Law School. He spent his entire business career in the Independent telephone business. Mr. Nixon was born in Westfield on Sept. 29, 1887 and spent his lifetime in his native environs.

In September, 1914, he married Marion Hequembourg and they had four children, S. Frederick III (who preceded his father in death a year ago); Alastair, Roderick and Constance (now Mrs. John Wagar of Mechanicville, N. Y.)

At the time of his death, Mr. Nixon was president of the Chautauqua & Erie Telephone Corp.; a director of the Jamestown Telephone Corp. and of the Home Telephone Co. of Ridgway, Pa. He was president of the Dunkirk & Fredonia Telephone Co. of Fredonia, N. Y.; and a director of the Independent Telephone Pioneer Association.

Mr. Nixon served Independent telephony, also, as a member of several committees of the United States Independent Telephone Association and as a director of the New York State Telephone Association.

Mr. Nixon is survived by his widow and children and by nine grandchildren.

Convention Calendar

1959

Association	*Date*	*City*	*Hotel*
Indiana	May 6 and 7	Indianapolis	Claypool
Wisconsin	May 13 and 14	Milwaukee	Plankinton House
Kansas-Missouri*	May 25 and 26	Kansas City, Mo.	Continental
Pennsylvania	June 1, 2 and 3	Buck Hill Falls	Buck Hill Falls Inn
California	June 3, 4 and 5	Los Angeles	Ambassador
Washington-Oregon*	June 11, 12 and 13	Seattle	Olympic
New York	June 15, 16 and 17	Schroon Lake	Scaroon Manor
Alaska	September	Anchorage	Unannounced
Tennessee	Sept. 9 and 10	Nashville	Hermitage
Arkansas	Sept. 14 and 15	Hot Springs	Arlington
Michigan	Sept. 15, 16 and 17	Grand Rapids	Pantlind
Rocky Mountain	Sept. 16, 17 and 18	Salt Lake City, Utah	Utah
New England	Sept. 21, 22 and 23	Bretton Woods, N.H.	Mt. Washington
West Virginia	Sept. 23 and 24	Davis	Blackwater Falls Lodge
North Carolina	Oct. 5 and 6	Pinehurst	Carolina
USITA Annual Convention	Oct 11, 12, 13 and 14	Chicago	Conrad Hilton
Virginia	Oct. 29 and 30	Roanoke	Roanoke
Alabama	Nov. 9 and 10	Birmingham	Thomas Jefferson
Georgia	Nov. 11 and 12	Atlanta	Dinkler-Plaza
Oklahoma	Nov. 18 and 19	Oklahoma City	Skervin
Florida	Nov. 30 and Dec. 1	Jacksonville	Robert Meyer

*Joint Convention

E. AMES CAMPBELL, 54, local manager for Telephone Utilities of West Virginia, Inc., Export, Pa., died at his home on Mar. 13.

Mr. Campbell, a native of Winamac, Ind., and a graduate of Ohio Northern University and Chicago Technical College, had been associated with the Independent telephone industry for 22 years.

He had been associated with Telephone Utilities of Pennsylvania, Inc., the parent company, since March, 1955.

He served as manager for the Brookville (Pa.) Telephone Co., Brookville; Dunnville Consolidated Telephone Co., Dunnville, Ont.; and in July of 1958, was made manager of Telephone Utilities of West Virginia, Marlinton, W. Va.

Mr. Campbell had worked for Kellogg Switchboard & Supply Co. for eight years prior to joining Telephone Utilities of Pennsylvania, Inc.

Survivors include his wife, Viola; a son, John at home; his father, John A., of Cameron, W. Va.; a brother, William A., of Genoa, Ill.; and two sisters, Mrs. Robert Snively of Mariana, Ga. and Mrs. Elwood Rhuark of Carrolltown, O.

General Service Names Wanerus Equipment Head

Announcement of the transfer of Ralph T. Wanerus from General Telephone Co. of California to the General Telephone Service Corp. in New York City was made on Apr. 9 by Donald C. Power, chairman and chief executive officer of General Telephone & Electronics Corp.

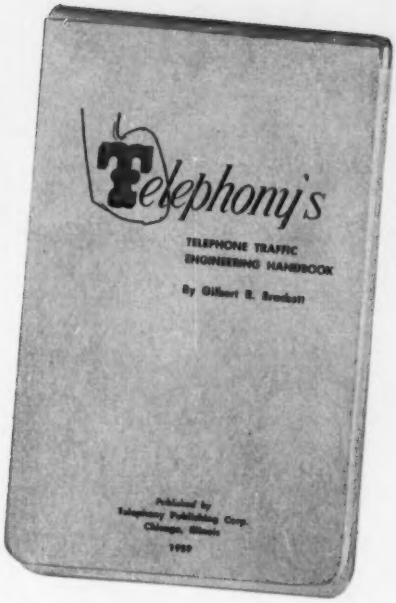
Mr. Wanerus is presently division equipment maintenance supervisor. He was born and educated in the state of Iowa and joined the California company in 1929 as a switchman in the Long Beach exchange. During his employment, he has had considerable experience in equipment supervision and equipment engineering.

In his new assignment, Mr. Wanerus will be equipment administrator reporting to Paul Malmgren, plant director.

Mixed Blessing

"At the time we were funding our national debt, we heard much about 'a public debt being a public blessing,' that the stock representing it was a creation of active capital for the ailment of commerce, manufactures and agriculture."—THOMAS JEFFERSON

NOW... AVAILABLE in HANDBOOK FORM!



"TELEPHONY'S TELEPHONE TRAFFIC ENGINEERING HANDBOOK"

By Gilbert R. Brackett

Because of the great demand on the part of telephone engineers, Mr. Brackett's popular series of articles on traffic engineering, published in TELEPHONY over a period of 10 months, has been reprinted under one cover—in the form of a 146-page pocket-sized handbook (4½" x 7¼"). The Handbook is so arranged that additional sheets may be inserted.

TELEPHONY engaged Mr. Brackett to prepare these articles as a result of requests for traffic engineering data from Independent telephone companies. The Handbook is the first complete pocket-sized book on traffic engineering that has been available to the telephone industry.

For the subjects covered, in sectional form, by the Handbook, see the next column.

MORE THAN 900 COPIES of the Handbook have already been sold for use by traffic engineers and as texts in traffic engineering training courses. All traffic engineers or men responsible for traffic department operations, should have copies of this valuable Handbook.

What is traffic engineering
The traffic engineer's job
The step-by-step automatic system
Traffic engineering assumptions
Line finders
Connectors
Selectors
Second selectors
Level "1" first selectors
Levels "2" and "3"—second selectors
PBX tie trunks
Intercepting trunks
Out dial connector trunks
Conference equipment (PBX)
Reverting call switches
Level "0"—Operator trunks
PBX Level "9"—central office trunks
PBX central office two-way trunks
Repeaters
Incoming selectors
Selectors and connectors—toll
Capacity tables
Assignments of line and station numbers
Customer usage
Traffic surveys
Equipment nomenclature
Miscellaneous traffic information
Traffic load estimating
Distribution of holding time (PBX)
Accepted system standards for ringing and silent periods
Maintenance items to look for on switchboard
Automatic exchange classifications
Traffic information
Inter-departmental cooperation
Judgment methods which assure reasonably good results in engineering
Handling overloads
Traffic engineering short cuts—automatic
Traffic engineering short cuts—manual
Short cut method—toll
Short cuts—power requirements, switch type C.O.E.
Graded multiple
Graded multiple engineering
The traffic unit
Force adjustment
Toll switchboard requirements
Traffic space requirements
Managing your service
Managing peak holiday traffic—toll
Managing your office—automatic
Managing your office—manual
Numbering arrangements
Influence of exchange rate structure on facilities

USE THE COUPON BELOW TO ORDER YOUR COPIES

TELEPHONY Publishing Corp.
608 South Dearborn, Chicago 5, Illinois

Please find check enclosed to cover my order for copies of "TELEPHONY's Traffic Engineering Handbook" as follows:

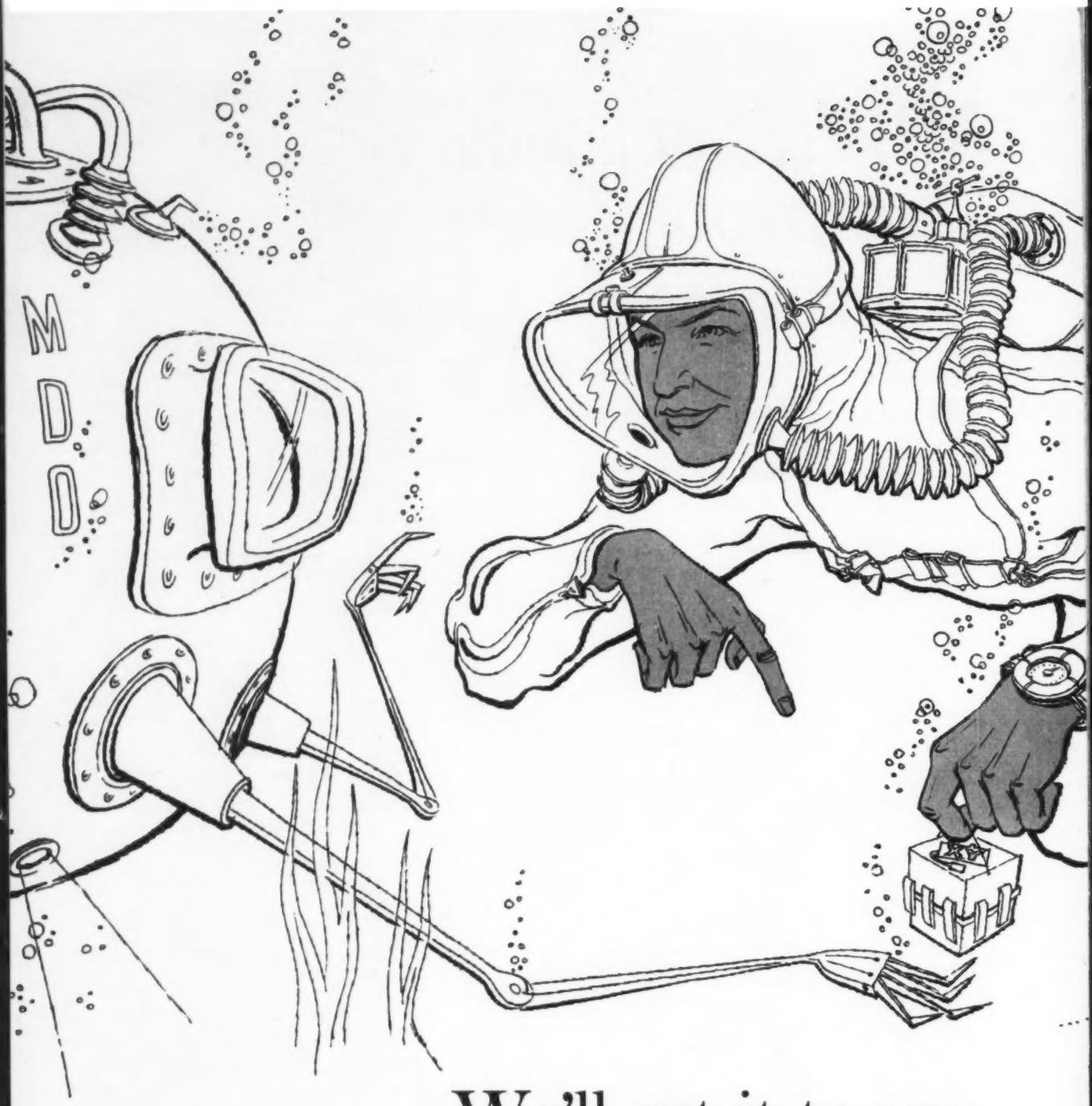
_____copy (ies) at $2.50 per copy (1 to 50 copies)

_____copies at $2.00 per copy (over 50 copies)

Name_____Company_____

Address_____

City_____State_____



We'll get it to you...

Thanks for the supply order. Now we'll spare no effort in rushing it to you—no matter where you are.

We chose the locations for our five warehouses with one thought in mind: to give you the fastest possible delivery. Your routine orders are handled quickly. Your rush orders get *very* special attention and handling. You get this kind of service no matter how small or large your order may be.

The men who serve you are trained to meet your needs. Their experience gives them a complete under-

STROMBERG-CARLSON A DIVISION OF GENERAL DYNAMICS CORPORATION

ATLANTA: TRinity 5-7467 • **CHICAGO:** STate 2-4235 • **KANSAS CITY:** HArrison 1-6618 • **ROCHESTER:** HUbbard 2-2200 • **SAN FRANCISCO:** OXford 7-3630

wherever you are!

standing of your particular requirements.

Next time you need construction materials and supplies, contact the Stromberg-Carlson branch office in your area. You'll really get service that's fast and efficient—wherever you are.

KEN JOHNSON, Inside Sales—San Francisco

S-C | GD

IN THE NATION'S CAPITAL

Concluded from page 18

difference between actual and "normalized" tax payments.

What is likely to happen (as a result of this so-called Declaration of Policy) is that some New York public utility company which has purposely avoided taking any of the accelerated depreciation deductions will, sooner or later, have to apply for a rate increase. The Bell System companies are of this category. They have refrained, as a matter of policy, from using the accelerated depreciation election because they probably figured that the over-all tax advantages would be very doubtful. Some Independent companies felt the same way. But, now it would seem that the advantages are more than doubtful. Utility companies could even be charged with tax deductions they never claimed, and "stuck" accordingly in their rate schedules.

This *could* happen, unless the New York State courts decide otherwise. It is hard to imagine New York State utilities failing to get a judicial review of this question, especially since it was clearly decided just the other way, in the neighboring state of Pennsylvania.

Incidentally, this writer inadvertently misquoted the position of a reader of this department on this subject in the TELEPHONY issue of Mar. 21. Purporting to quote Frank Shufflebarger, chief accountant of the Northeastern Telephone Corp. of London, Ky., it was there stated:

"If we use an assumed plant depreciable base of $100,000 at the rate of 10 per cent per year we will find that the straight line method of depreciation will exceed the accelerated method by *approximately $10,500 over earlier years.*"

This was a typographical error. In the underlined portion the words "earlier years" should have read "over a period of 10 years." The slip had the effect of reversing our reader's meaning. Sorry, but we meant well. We still agree with Mr. Shufflebarger. And, now, we hope he agrees with us.

E. M. Clark of SW Bell Receives LL.D. Degree

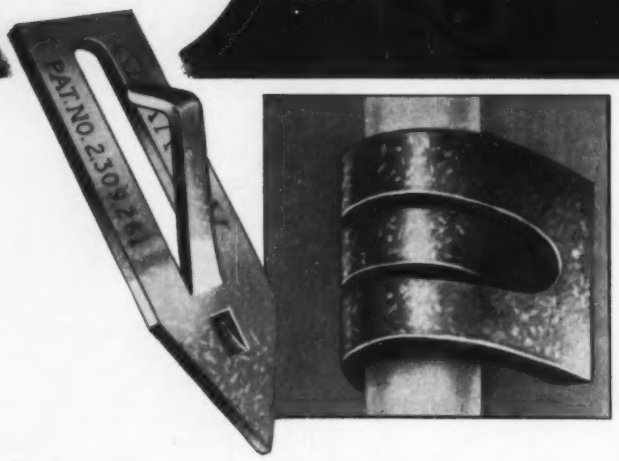
Edwin M. Clark, president of Southwestern Bell Telephone Co., St. Louis, Mo., became "Doctor Clark" Apr. 6, when Missouri Valley College conferred on him the honorary degree of doctor of laws.

The LL.D. was awarded to Mr. Clark in recognition of his many civic and service activities.

The presentation was made at the

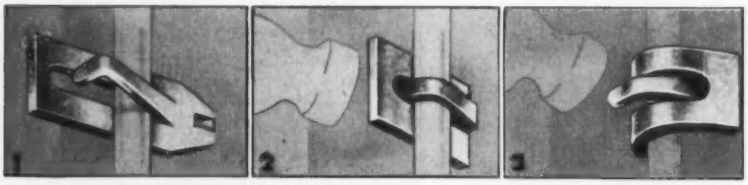
eliminates radio interference

KEARNEY NON-STATIC GROUND WIRE CLIP



When ordinary staples lose their hold in wood, contact pressure drops, and resultant air-gap static causes radio and television interference. KEARNEY Non-Static Ground Wire Clips prevent this interference by maintaining permanent, high pressure contact with ground wires, entirely independent of how tightly the clip is set in the pole.

When this clip is driven, a hook automatically, permanently grips the wire, remaining free of all trouble-causing air gaps. Inexpensive and easy to drive, this clip holds fast in all woods.



Easy to install: Just drive clip until point seats firmly in wood. Insert ground wire under hook, then drive until hook grips wire and starts protruding through slot in body. Bend end of clip over the wire and into the wood.

-358

JAMES R. KEARNEY CORPORATION • General Offices: 4224-42 Clayton Ave., St. Louis 10, Mo.

for BETTER CONSTRUCTION
SAFER MAINTENANCE
Specify **KEARNEY PRODUCTS**

Plants at: ST. LOUIS • FAYETTEVILLE, ARK. • SHENANDOAH & CLARINDA, IA.—GUELPH, ONT., CAN.

10th anniversary convocation of the American Humanics Foundation, of which Mr. Clark is president. This organization, which provides college training for young people wishing a career in professional youth leadership (Boy or Girl Scouts, YMCA, YWCA, Salvation Army, Red Cross, etc.), established its first unit at Missouri Valley College in 1949.

The honorary degree was another of several awards Mr. Clark has received for his community leadership. In 1953, he was named St. Louis' "Man of the Year," after only three years in that city.

From 1955 through 1958 he served as president of Civic Progress, Inc., a citizens' group working for long-term civic improvements.

In 1958 he received the "Golden Knight of Management" from the St. Louis area council of the National Management Association.

Simpson Heads Carolina T&T Advertising, Publicity

Harold N. Simpson of Ahoskie, N. C., has joined the Carolina Telephone & Telegraph Co. as advertising and publicity supervisor.

H. N. SIMPSON

Mr. Simpson was with *The Herald* in Ahoskie for four years and prior to that was publisher and editor of the *Clayton News*.

He graduated from high school in Longview, Tex., attended the Southwest School of Printing in Dallas, and received his formal training in journalism at the University of Tennessee.

During World War II, Mr. Simpson served with the U. S. Army in Europe and the Far East as a radio operator.

He succeeded John Reed who resigned to accept employment with *The Ledger-Dispatch* and *The Virginia Pilot* in Norfolk, Va.

Continued from page 27

Fig. 89. Lineman's belt accessories.

the ring strap keep the knife within easy reach—convenient and safe.

•

Special Pliers. (Figs. 90, 90A, 90B and 90C). Pliers have always been the most useful tool of the telephone worker. Special pliers are often neglected, although, in many cases, they may be used to advantage and prove to be real time and labor savers. The

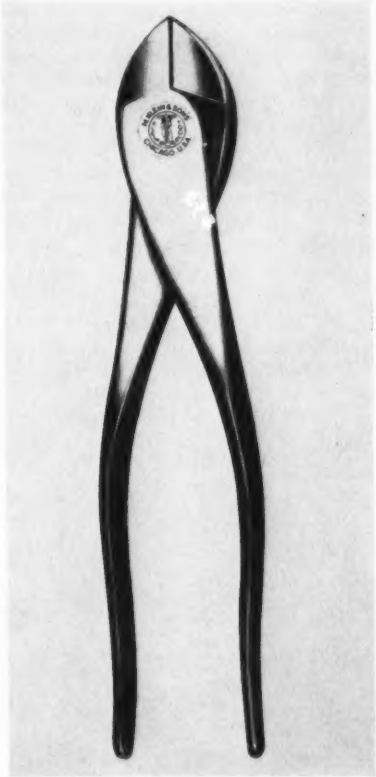


Fig. 90. Oblique plier.

Send a Truckster instead of a truck!

CUSHMAN
780 TRUCKSTER®

Low original cost, low operating cost (less than a penny per mile) and low maintenance cost have made the 780 Truckster the choice of thousands of industrial, commercial and governmental users for hundreds of light hauling jobs.

Powered by the Cushman Husky 4-cycle engine, the 780 Truckster handles an 800 pound payload with ease.

And now, the 1959 models incorporate no less than a dozen important advances for still greater performance, safety and ease of operation. They include:

- Constant mesh transmission and improved clutch
- Hydraulic, internal expanding brakes on all wheels
- Independently operated parking brake
- Tapered roller bearings on all wheels
- Heavy-duty automotive-type wheel rims
- 12-volt lighting system with sealed beam headlight

All-fiber glass cab with side curtains available as optional equipment. Wide variety of body styles offered to fit your specific needs. Electric starter also available.

See your dealer for
FREE DEMONSTRATION
or write for new FREE booklet today

Sold and serviced nationally . . .
Replacement parts immediately available
Dealer inquiries invited

CUSHMAN MOTORS
A subsidiary of Outboard Marine Corporation
Lincoln, Nebraska

CUSHMAN MOTORS
992 No. 21st, Lincoln, Nebr.
Please send complete information on the 780 Truckster.
NAME _____
ADDRESS _____
CITY _____ STATE ____

GLADWIN SHELF-ETTES*

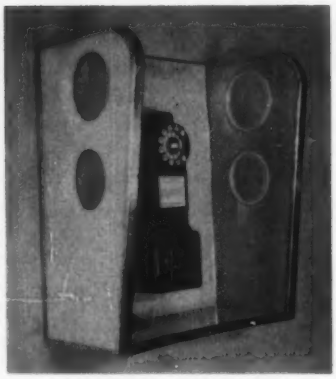
INSPIRED STYLING CREATES AN EXCITING LINE OF INDOOR PAY STATION MOUNTINGS. AS THE TREND IS TOWARD MORE ELEGANCE, GREATER REFINEMENT, THE HIGH STYLED, RUGGED BUILT, DURABLE GLADWIN SHELF-ETTES WILL MAKE YOUR INDOOR PUBLIC TELEPHONES TAKE ON A NEW SALES SIGNIFICANCE.

SHELF-ETTE
With directory shelf added
Gleaming crystal clear plastic sides. Mar-proof plastic covered plywood. Polished aluminum trim. There are 14 models of Gladwin SHELF-ETTES. The above may be had with acoustic back.

Produced by expert craftsmen to be in good taste wherever placed.

A colorful brochure on Gladwin's complete line of SHELF-ETTES will show you how wise purchasing and efficient usage will give you a rising income curve.

*Patent Pending



Acoustic SHELF-ETTE
With ultra high sound absorbing qualities. May be had without portholes. Available in 5 colors.

WHY NOT OFFER YOUR CUSTOMER A SHELF-ETTE THAT WILL MAKE HIM PROUD TO GIVE YOUR COIN TELEPHONE THE VERY BEST LOCATION?

GLADWIN SHELF-ETTES

ARE SURPRISINGLY LOW IN COST, EASY TO INSTALL
ENGINEERED TO GIVE HIGHEST PERFORMANCE

Order from your supplier or direct

GLADWIN PLASTICS, INC.

165 COURTLAND ST. N.E. ATLANTA 3, GA. JAckson 5-5384

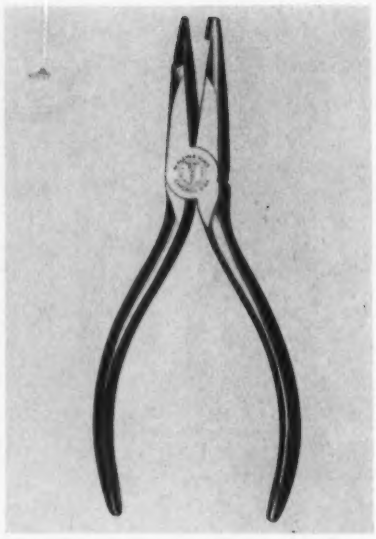


Fig. 90A. All-purpose Electronic plier.

Klein oblique plier shown in *Fig. 90* can be used for heavy cutting jobs where the plain diagonal cutters may not prove adequate.

An all-purpose electronic plier is shown in *Fig. 90A*. This plier has a shear cutting blade at 15 degrees angle. It will cut wire flush and the steel jaws hold the clipped end tightly. The nose opposite the blade is knurled. The shear cutting principle assures smooth, continuous action without snap preventing shock which may damage transistors and other delicate components. It is designed for use on bare wire up to 18-gauge.

A special skinning plier is shown in *Fig. 90B*. This plier is designed especially for cutting the skinning 22-gauge, synthetic-insulated wire. A notch in the nose back of the cutting

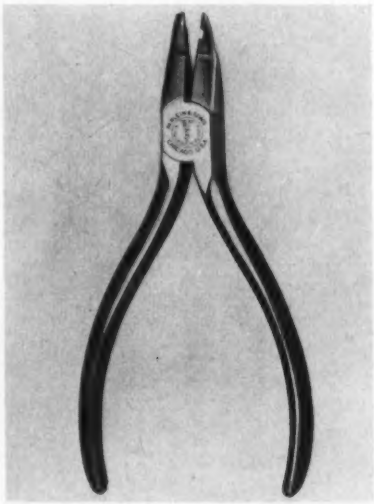


Fig. 90B. Special skinning plier.

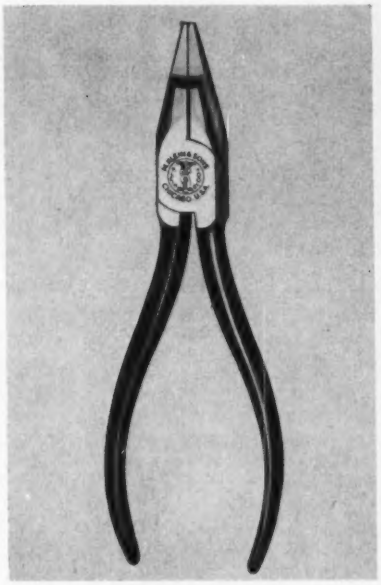


Fig. 90C. Insulation skinner.

blade, crushes the insulation. The sharp blade assures a quick, clean cut. The nose is tapered to permit access to confined spaces.

A long nose, insulation skinning plier is shown in *Fig. 90C*. This is a special plier designed for telephone use to skin 22 and 24-gauge wire. The insulation is cracked in the slot provided in the nose.

•

Conduit Flush Coupling. (Fig. 91). Orangeburg Mfg. Co. has announced that its fibre conduit—for concrete encasement—is now available with a new-type flush coupling attached to each length at no extra cost. The new development known as Orangeburg CA conduit is said to cut laying time up to 26 per cent by eliminating assembly of separate couplings on the job.

This new-type coupling, made from a tough plastic especially compounded for Orangeburg, produces a self-sealing water-tight joint. The flush coupling eliminates the necessity of staggering joints in the trench and means less tooling on the job. It also eliminates

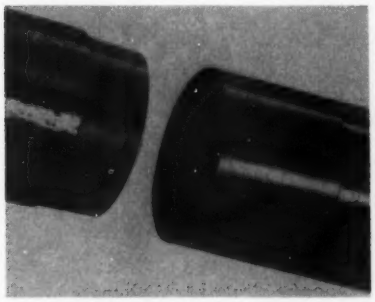


Fig. 91. Conduit flush coupling.

KELLOGG

VOLUNTEER-FIRE-CALL

"gets them on the job quicker"

The installation of a Kellogg ten-line fire reporting system in Star City and another in Buffalo, Indiana central offices, has led Mr. Otho Price, Fire Chief at Buffalo, to report, *"We get more of our firemen on each call, and we get them on the job quicker with the new dial fire alarm system . . ."*

This is typical of community results with the Kellogg Volunteer Fire Call System. Also, it's easily installed. To quote Mr. James D. O'Connor, manager of The Pulaski-White Rural Telephone Co-Operative, Inc., "Since this system uses the regular subscriber phone, we need not install extra phones or occupy needed cable pairs with fire lines . . . it is the answer to the problem facing small communities in regard to fire reporting after conversion to dial."

Your Kellogg sales representative will be glad to explain the many advantages of this system for your community.

KELLOGG
CHICAGO, ILLINOIS
IT&T

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue
Chicago 38, Ill. Communications division of
International Telephone and Telegraph Corporation

For complete list of offices see pages 22-23

separate coupling cartons, thus reducing handling and storage requirements. The new coupling fits flush with the outside diameter of the conduit, permitting storage in even stacks.

Orangeburg standard conduit for concrete encasement, and Orangeburg Nocrete conduit for direct burial are also available with the regular tapered sleeve coupling.

•

Flush-type Conduit Coupling. (Fig. 92). Johns-Manville's Transite conduit is now furnished with a flush-type plastic coupling. This permits multiple conduit to be installed in a trench without spacers for telephone use. The nominal length of this conduit is 10 feet.

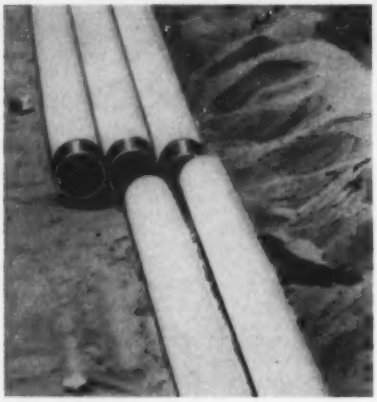


Fig. 92. Flush type conduit coupling.

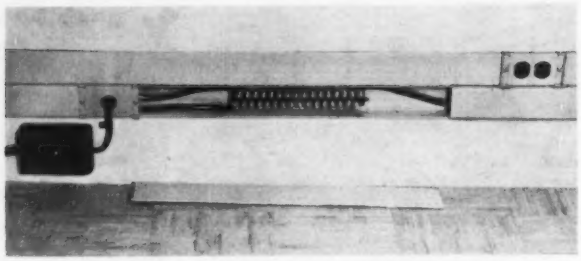


Fig. 93. Duct system.

•

Duct Systems. (Fig. 93). Wiremold Tele-Power duct systems offer many advantages for commercial and industrial use in new and old buildings. Consisting of a pair of parallel raceways—one for telephones, signal and inter-office communications, and another for a multi-outlet system for power and light wiring—the system is installed on the surface of the wall where all wiring is readily accessible for making future additions, changes, or repairs.

Because each raceway has its own cover, the electrical contractor or telephone installer need only install or remove the cover for the wiring that concerns him. Thus, the high and low potential wiring are not exposed to each other.

The raceway cover is easily snapped into the base without fittings. No holes are needed, and there is no chance of misaligning screw holes even when the cover sections are cut to shorter than standard lengths. Receptacles can be located anywhere along the power run, and there is no special trick to fastening them, regardless of the spacing.

By specifying raceways with extra capacity, additional wiring and devices can be installed whenever they are required — without disturbing the remainder of the system.

•

Aerial Cable Clamp. (Fig. 94). Three

How can you string telephone lines faster?

Use USS Tiger Brand Amertel 195

Because the high-tensile characteristics of Amertel 195 make possible longer spans than other telephone wires, work is speeded up. There are fewer holes to dig, fewer poles to set, less hardware to install. Mile after mile, lines strung with this bonus wire go up faster—more economically.

The use of USS Amertel 195 pays off in other ways:

- Amertel 195 has extra low resistivity, resulting in better voice transmission at relatively high frequencies.
- Amertel 195 is easy and economical to string over rivers and gullies.
- Severe weather conditions will not damage it. Heavy ice may weight it down, but will not break it.
- Existing rural power poles may be used to string telephone lines without need for additional supporting poles.

For more information, write to American Steel & Wire, Dept. 915, Rockefeller Bldg., Cleveland 13, Ohio. We'll gladly send you our new, free booklet on Tiger Brand Amertel 195. *USS and Tiger Brand are registered trademarks*

American Steel & Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • Tennessee Coa l& Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

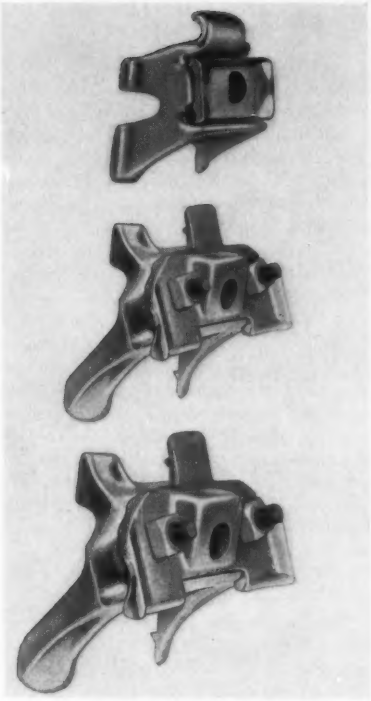


Fig. 94. Aerial cable clamp.

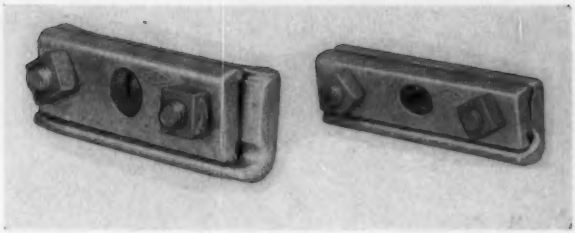


Fig. 95. Cable suspension clamp.

recently designed aerial cable clamps, covering the complete messenger range No. 6AWG to ¾ inch are announced by Malleable Iron Fittings Co. All have generously belled groove ends, allowing the use of one clamp on angles and tangent runs.

•

Cable Suspension Clamps. (Fig. 95). Two new cable suspension clamps of standard type have been developed by Malleable Iron Fittings Co.—the PA-207 for use on tangent runs and the PA208 on angles. The method of manufacture makes it possible to provide generously belled groove ends at no extra cost which minimizes possible chafing and chance of messenger damage.

Both types are supplied with ½-inch diameter track bolts and are designed for mounting with machine or double arming bolts which also serve as a third clamping bolt.

•

Clevis Dead-End. (Fig. 96). A newly

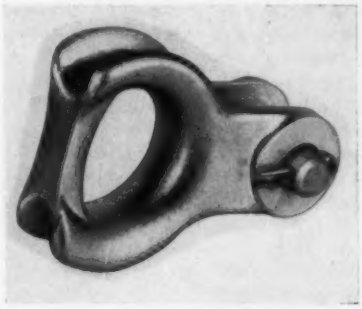


Fig. 96. Clevis dead-end.

LOOK TO THE LEADER . . .

for
• RELIABILITY
• SERVICE
• NATIONALLY KNOWN TELEPHONE SUPPLIES

Prompt delivery of your order as specified is assured by Lindsay's fast, efficient, personalized service. Lindsay specializes in telephone supplies *only* . . . warehousing a complete line of the finest nationally known brands . . . your guarantee of the best as you want it . . . when you want it.

LOOK TO LINDSAY

THE LINDSAY TELEPHONE SUPPLY CO., Est. 1939
360 East Highland Road, Northfield, Ohio • Telephone: IMperial 7-7181

developed MIF thimble clevis offers an economical method of dead-ending aerial cable messengers. The smooth grooves of this clevis eliminate chafing of the messenger and the generous thimble diameter maintains the shape. It is rated at 18,000 pounds.

•

Guy Hook. (Fig. 97). For down and span guying, the MIF guy hook has been completely redesigned, retaining the basic design principle while improving some of the important details. The general design is such that, when loaded, the through bolt remains primarily in tension, rather than shear, and, thus, greatly increases the load which can be carried for any given through bolt diameter.

The broad heel pad resists overturn and offers stability, and teeth and spurs incorporated in the pole contacting surface resist downslotting.

The guy hook design also permits easy installation of the guy loop or any type of dead end device at any time during construction — before or after the pole is set—without necessitating the linemen threading the strand or dead end device through a closed eye. Further economy is offered in the integral spur type which does not require a separate lag screw and eliminates the possibility of loose hardware on the pole.

Fig. 97. Guy hook.

General Promotes Horne

Ray C. Horne, former West Virginia-Virginia division plant superintendent with the General Telephone Co. of the Southeast, has been promoted and transferred to the company's headquarters at Durham, N. C., as general plant installation and maintenance supervisor.

TEST HYBRID SET

Concluded from page 29

be wired together to make a test. The oscillator or noise generator and the measuring equipment are connected up externally. Inside the set is a repeat coil hybrid, which is connected through jacks to an impedance matching repeat coil. This will match either 900 or 1500 ohms as may be required by the gauge or loading of the cable pair under test.

Also within the set is an impedance compensator. This consists of a toroid coil and a set of building-out capacitors. In practice, cable pairs may have the incorrect impedance to match other facilities because of loading coils which are not close to the office. This is corrected by adding capacitance in the office until an impedance match is obtained. This capacitance may take the form of an additional length of cable in the cable vault, or may be a condenser hooked on to the pair in a splice or at the distributing frame.

The Airtronics test set provides a means for introducing trial capacitance into the circuit while tests are being made. Provision is also made for the addition of network building-out capacitance on the repeat coil hybrid end of the circuit. This feature is used in singing point measurements. It is at this point in the circuit that provision is made for the connection of an external net if special cases require it.

A pair of cut-off jacks are placed between each of the three basic units in the set—the hybrid, the impedance matching coil, and the impedance compensating equipment. Thus access may be had to the "in" or "out" sides of any of these components without the necessity of twisting wires all over the place.

This test set, known as the Model 10A Portable Test Hybrid, has a companion unit called the 50-C Telephone Line Matching and Terminating set, which is used to provide a termination for facilities when transmission tests are being made.

Who Is a Good Driver?

The Apr. 1 issue of the *Industrial News Review* comments that the fellow who insists upon what he thinks are his rights in traffic rates high as a social menace. The Portland, Ore., Traffic Safety Commission points out that in the operation of a motor vehicle, each individual driver is exercising a privilege granted by the state. The difference between a good driver and a highway misfit—is often the difference between a driver who appreciates his privilege and one who demands a nonexistent right.

HAVING TROUBLE WITH OPENS?

Solve them quickly, with a Neale Troubleshooter's tone and the "Cable Trouble Shooting" booklet.

The Neale Troubleshooter's tone is an inexpensive, easy to use instrument, for talking and locating trouble in telephone cable.

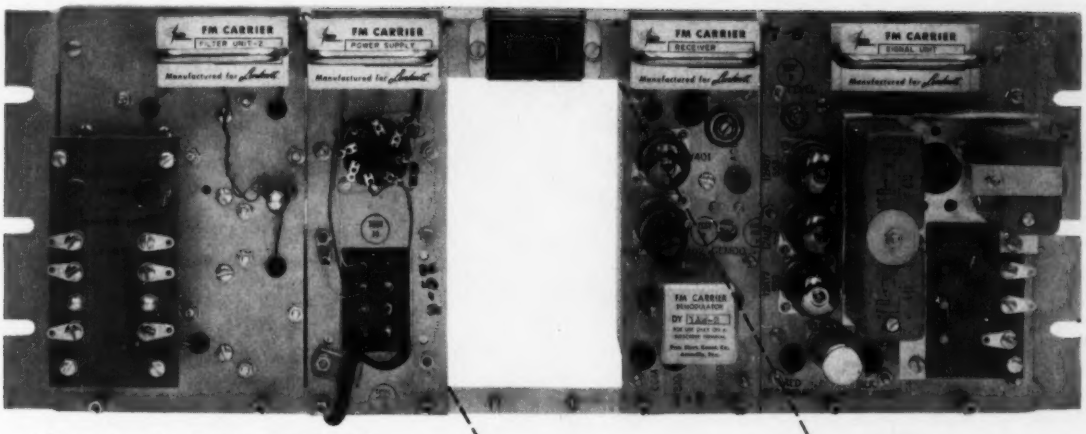
The tone has circuits for high and low frequency testing, a circuit for talking, and a buzzer circuit for testing continuity.

It comes complete with batteries and four leads, all contained in a strong case with an over-the-shoulder leather carrying strap. It weighs only 9 pounds with batteries.

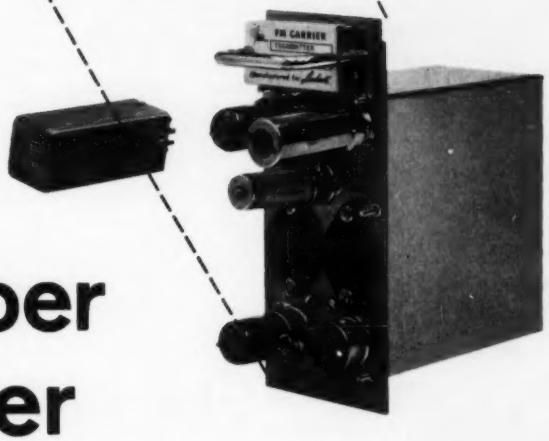
JUST OFF THE PRESS: The Cable Trouble Shooting booklet has ten trouble shooting circuits, written and illustrated so the layman can understand them. We will be happy to send you a FREE copy of this booklet; just write to address below.

CABLE SPINNING EQUIPMENT CO.

3100 TOPEKA AVE.
TOPEKA, KANSAS



FM Subscriber Line Carrier terminal with transmitter unit removed to show unitized construction with plug-in components. This "plug-in" concept simplifies trouble shooting and maintenance—avoids shutdowns.



FM Subscriber Line Carrier

The economical answer to your rural service problems!

FM Subscriber Line Carrier provides a low-cost, versatile method of adding up to 10 multi-party subscriber circuits on an existing wire pair.

Operating frequencies are higher than with most conventional carrier equipment, thus permitting installation on the same circuit or pole-lead as existing carrier, with little or no problem of coordination. Hundreds of these systems now in use by leading telephone companies are proving the dependable, economical answer to improved rural service.

Lenkurt and Automatic Electric have teamed up to provide complete engineering, supply, and repair service for FM Subscriber Line Carrier equipment. If you would like more information, call your nearest Automatic Electric Representative — or write for illustrated literature.

Manufactured for Lenkurt by Panhandle

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

Transatlantic Cable Repair Told by AT&T Long Lines

The accolade of a "Job Well Done" went to cable specialists of American Telephone & Telegraph Co.'s Long Lines department when they quickly mobilized and restored service in the broken transatlantic telephone cable within a span of eight days in February this year.

The completion of this difficult job so swiftly is in the best tradition of the service given by telephone people.

Preparation for restoration of service, on both sides of the Atlantic; the location of the fault; and the hazards reckoned with in the course of the repairs—are presented here in a quotation from the story as it appears in the April, 1959 issue of *Long Lines*, employe publication of the Long Lines department.

"On Saturday morning, Feb. 21, the east-west telephone cable between Oban, Scotland, and Clarenville, Newfoundland, suddenly went out of service because of breaks off the Canadian shore. Less than eight days later, on Sunday morning, Mar. 1, the cable had been repaired and again was handling transatlantic telephone conversations.

"How this was done is a saga of men, ships and airplanes. As soon as the cable fault occurred, actions were begun for its repair. Arrangements were made at once to charter the Western Union Telegraph Co.'s cable ship Lord Kelvin. With equal speed, steps were taken to dispatch Long Lines and the Bell Laboratories people to board the Kelvin in Halifax, Nova Scotia and to Clarenville to take part in tests for the location of the cable break.

This view of the Lord Kelvin, Western Union Telegraph Co. cable ship, in an ice pack of 12 to 18-inch thickness suggests the difficulty of operations in the vicinity of the cable breaks. A radar reflector is seen at the top of the buoy mast.

"On the other side of the Atlantic, technical staff men of the British Post Office hurried from London to Oban to participate in the testing. The testing was done mainly with a new fault localization test set. Other means of testing were also used at Clarenville and at Oban to check the findings of the new equipment.

"It was highly important that an accurate location of the break be determined quickly as the Atlantic cables are of three different types (depending on depth) and the Kelvin would have to be provided with the right kinds.

"Early tests (which were later confirmed) showed the trouble to be in relatively shallow water (about 1,000 feet) off the continental shelf where the cables descended abruptly into much deeper water.

"By noon, Monday, the Kelvin had finished loading and began her voyage. While the ship was on her way possible causes of the trouble were being considered. The possibility that the fault was caused by a deep-traveling iceberg was soon eliminated. The seismograph at Dalhousie University in Halifax showed no disturbance.

"At this stage Western Union lost four cables in the vicinity. An airplane from Gander was then chartered and the pilot reported a fishing trawler in the area.

"After battling heavy winds and dodging drifting ice fields for five days, the Kelvin reached a location calculated to be about two miles east of the point of trouble. There she was forced to stand by for a time as a large ice pack lay directly over the cable, snow was falling, visibility was poor, and the seas were too rough for work.

"Improved weather conditions permitted the Kelvin to begin grappling operations at 7:00 a.m., Saturday, Feb. 28. By dragging its grappling hooks along the ocean bottom, it caught the cable on the first pass and it was pulled aboard.

"It was then discovered that the cable was parted not in one but in two places. It appeared to have been cut with a sharp-edged instrument. Slightly more than a half-mile of cable (between the breaks) was never recovered.

"Restoration work proceeded smoothly despite near-zero temperature and ice floes that continually threatened to disrupt operations. All tests were completed by 9:30 a.m. Sunday, and a few minutes later telephone calls were once more moving over the cable."

PWC

TELEPHONE CABLES

For Every Application

INSIDE TELEPHONE

TYPE 122

Specifically designed for inside telephone station, intercommunication, private branch exchange and special plan wiring systems.

Available in No. 22 and 24 AWG from 4 to 101 pairs.

Light weight for easy installation.

Moisture resistant for damp ducts.

Fully color coded installation for ease of termination and permanence of polarity identification.

Tough flame and abrasion resistant PVC sheath.

Rip cord to facilitate stripping at termination.

THE PLASTIC WIRE & CABLE CORPORATION
JEWETT CITY, CONN.

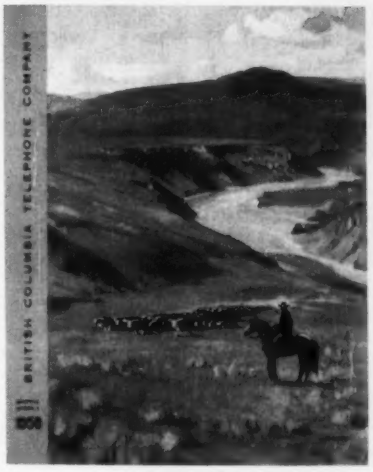
B. C. Telephone Book Shows How Color Sells Calls

For the second year, the covers of the telephone directories throughout the British Columbia Telephone Co. and the North-west Telephone Co. systems are carrying a full-color reproduction of an oil painting.

For the 1958 cover, in keeping with British Columbia's centennial year, the companies commissioned a Canadian artist, E. J. Hughes, who depicted a gold rush era stern-wheel steamer landing in 1858 at Yale, on the Fraser River.

The 1959 cover locale is also along the Fraser River in the colorful Cariboo country and portrays a cattle drive at a ranch near Dog Creek. This painting was done by Peter Ewart, a native of Langley, B. C.

Both paintings, according to N. F. Pullen, director of public relations, B. C. Telephone Co., have been well received by the public. He says, "Last year's painting hung for a while in our Vancouver public office and then went on a tour of the schools together with other paintings, with an interval in which it hung in the art gallery as part of an exhibit by the art directors club. While exhibited there, it was hailed in a newspaper as the 'most looked at painting in B. C. this year.'"



The front cover of the 1959 directories of the B. C. Telephone Co. and the North-west Telephone Co. systems depicts in full color a cattle drive in the Cariboo country along the Fraser River. The cover is a reproduction of an original oil painting done by a native Canadian artist. The public responded so enthusiastically to the color appeal of the 1958 directory cover that it was decided to continue the use of full color this year.

The Vancouver (B. C.) *Daily Province* noted approvingly the use of the painting for the directory cover. Under a heading, "Color Can Sell 'Phone Calls," a Mar. 5 editorial in that paper stated: "The picture has a generous, expansive sweep about it, which should make those of us who have it on our desks every working day yearn for the wide open spaces.

"It should even make some of us telephone for a reservation at a Cariboo dude ranch this summer.

"And thus the telephone company benefits, the Cariboo benefits, the general public benefits, and of course, a B. C. artist wins some recognition."

The back cover of the 1959 telephone directory is as colorful as the front. It reproduces in full color four room photographs—a den, living room, kitchen and bedroom—in each of which a color telephone is keyed to the decor for combined extension sales impact.

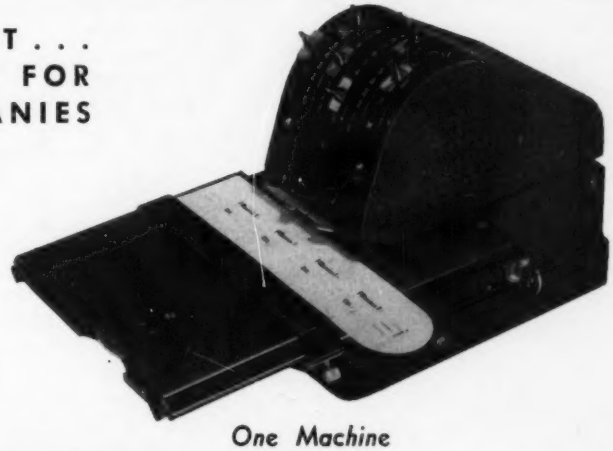
Butter Instead of Guns

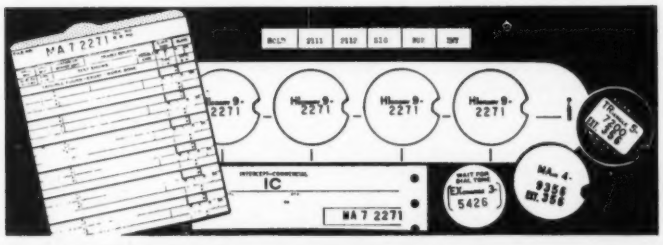
"Ever since there has been so great a demand for type, there has been much less lead to spare for cannonballs."—BULWER LYTTON.

NEW! QUICK SET . . . DESIGNED FOR TELEPHONE COMPANIES

The Ajax Electric Quick-Set is used by the Bell System to number QUICKLY . . . ACCURATELY . . . NEATLY . . . ECONOMICALLY . . . the various forms listed and many more.

Wheels engraved to your specification with figures, letters or words. Machines can be made with as many as ten wheels outside set for quick change of numbers from one combination to another. Complete alphabet wheels available if desired.





One Machine Numbers . . .

- Dial Cards
- Service Orders
- File Cards
- Button Set Cards
  - Switchboard Strips
  - Pay Booth Cords
  - and many others

Write us for full information and literature

AJAX BUSINESS MACHINES, Inc. 112 Magnolia Ave., Westbury, N.Y. · EDgwood 3-2111

News on New Products

CHROMIUM-PLATED HANDSET HOOK—Automatic Electric Co. has announced that its type 90 wall telephone—in black, and in the full range of 10 colors—is now incorporating chromium-plated handset hooks as standard equipment.

Use of chromium-plated hooks eliminates the necessity of changing hook switch assemblies when changing from one color telephone to another at a customer's premises. In addition, AE points out, the new hook adds to the appearance of the wall telephone.

The chromium plating on the handset hook meets ASTM requirements. Request NP 1065.

•

HYDRAULIC DIGGER—A new high-torque three-speed hydraulic digger with auger torque up to 8,400 foot-pounds has been developed by Holan Corp.

Labeled the Series 5400 earth borer, the new digger has three speed selections: (1) low speed with high torque; (2) a higher speed with lower torque, and (3) a spin speed. Holan claims the new digger provides higher auger torque than any derrick-suspended unit in the field.

When set for low speed and high torque, the digger burrows through hard, rocky terrain and handles augers up to 30 inches in diameter, Holan reports. When set for the lower torque and higher speed, it accomplishes normal digging and handles augers up to 16 inches in diameter. At spin speed, the digger throws mud and dirt off the blades.

Holan describes operation as follows: to switch from high torque to low torque, the operator simply pushes a lever on the digger head. For spin-off, he pulls a cord that moves another lever on the head; after spin-off, the digger automatically returns to the previous speed. The digger is operated from controls on the back of the truck.

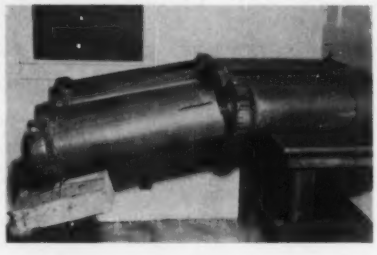
A positioning cylinder located on the power feed bracket has several important functions. First of all, Holan states, it corrects for the travel arc of the derrick and assures straight holes. Also, it provides more clearance while setting poles. And it can be used for aligning the auger when digging anchor holes at an angle.

Swivel mounted, the Series 5400 has universal action. It tilts and swings any way the operator desires, says Holan. Also, the digger has what is described as a compact floating planetary gear system which provides uniform tooth loading. It is designed simply and has a high duplication of parts to aid inventory. All bearings are of the anti-friction type.

The digger is available with 1000 psi or 2000 psi systems. Maximum torque possible is 8,400 foot-pounds. Request NP 1066.

•

CONCRETE OR CLAY CONDUIT JOINT SEALER—K. T. Snyder Co. is now supplying Root-Seal which the manufacturer states can be used to seal joints in concrete or clay conduit.



The Snyder company states that when its newly developed Root-Seal Primer is used with Root-Seal hot pour plastic base jointing compound, joint sealing properties are unequaled by any one commercial conduit or pipe sealing material.

The photo shows what the Snyder company describes as uniform and consistent 10-degree deflection of four Root-Seal joints without compound cracking or breaking away from the surfaces of the pipe. Corresponding high-strength Root-Seal joints have also been tested by an independent laboratory with 100 per cent resistance to leakage when the joints were subjected to internal hydrostatic pressure tests and held at 40 psi for 15 minutes, the company reports. Request NP 1067.

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1065_____; NP1066_____; NP1067_____; NP1068_____;

NP1069_____; NP1070_____; NP1071_____; NP1072_____;

NP1073_____; NP1074_____; NP1075_____.

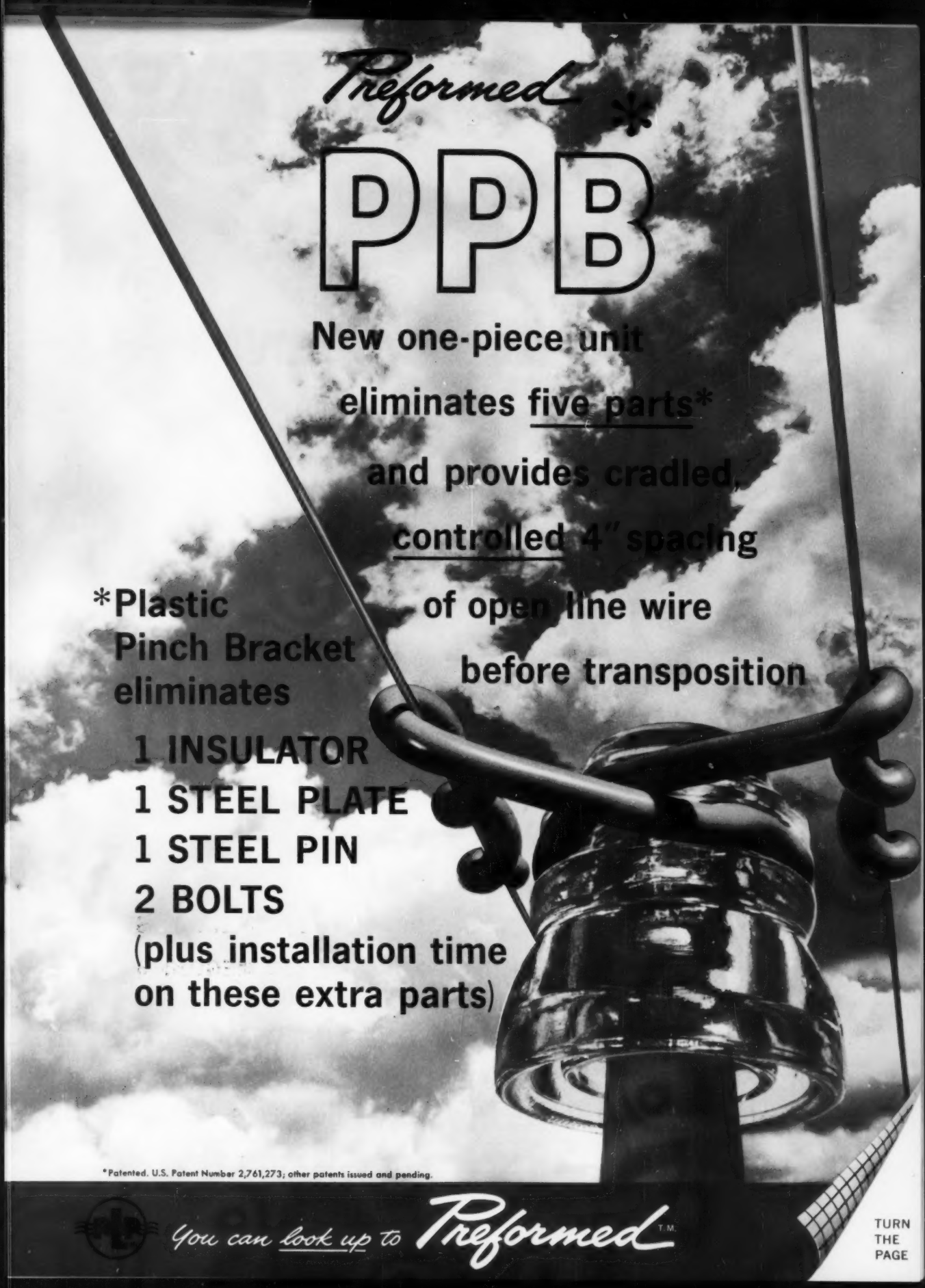
Name.....

Company.....

Street.....

Town and State.....

4/18/59


Preformed*
PPB
New one-piece unit
eliminates five parts*
and provides cradled,
controlled 4" spacing
of open line wire
before transposition
*Plastic
Pinch Bracket
eliminates
1 INSULATOR
1 STEEL PLATE
1 STEEL PIN
2 BOLTS
(plus installation time
on these extra parts)
*Patented. U.S. Patent Number 2,761,273; other patents issued and pending.
You can look up to Preformed T.M.
TURN
THE
PAGE

Performance Proven

by a leading national laboratory and The Preformed Research and Engineering Center

The rigors of 40,000,000 Cycles of Vibration failed to leave a trace of wear or abrasion on the open line wire

Compare the Results

of Direct Current Leakage Tests:

TYPE OF PINCH BRACKET	RESISTANCE, WIRE TO WIRE
Preformed PPB	**700 Megohms**
2 DP INSULATORS	280 MEGOHMS
2 TS INSULATORS	140 MEGOHMS
2 TOLL INSULATORS	120 MEGOHMS

Send for Descriptive Brochure and Price List

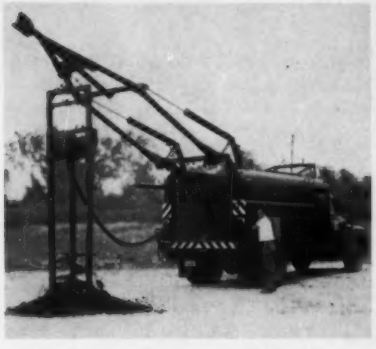
Write to:

PREFORMED LINE PRODUCTS COMPANY
DEPT. PPB
5349 St. Clair Avenue • Cleveland 3, Ohio

PREFORMED communications products are distributed by all leading National Telephone Suppliers.

SEE OTHER SIDE

HYDRAULIC HOLE DIGGER—A new addition to its line of hydraulic hole diggers has been announced by the Powers-American division of McCabe Powers Body Co. The new unit, designated Series EM-2 "Earth-Master" hydraulic hole digger, digs straight clean holes up to 10 feet 6 inches deep and 9 inches to 30 inches in diameter, according to Brooke Daly, company vice president.



This fully-powered digger is designed for use with a "live-boom" derrick, such as the Powers-American Series PM-2 "Pole-Master" hydraulic derrick. Power is supplied by a hydraulic pump driven by a full-torque drive assembly on the truck transmission. A reversible hydraulic motor rotates the auger; automatically shifts to low speed for digging and to high speed when auger is fully raised for "spin-off." A separate hydraulic motor feeds and raises the auger under power.

Powers-American states the auger is guided at all times by a rigid twin-column telescopic support frame which rests on the ground during digging. The frame is attached to a universal joint mounting bracket on the derrick which permits digging at angles, in close quarters and hard-to-reach spots inaccessible to fixed position diggers. Power feed of the auger, combined with down pressure which can be applied with the hydraulic derrick, enables the unit, the company says, to dig quickly in any type of soil, even that which is exceptionally hard or frozen.

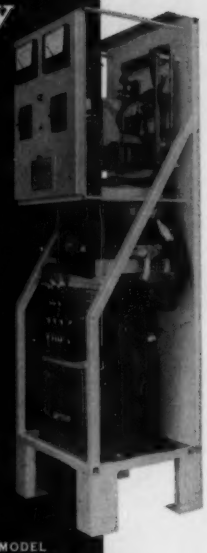
The Series EM-2 does not interfere with normal operation of the derrick. If necessary, a pole can be suspended from the derrick during digging operation to permit setting the pole as quickly as possible where cave-in of the hole is likely. Control valves are normally installed next to derrick controls in the right rear compartment of body. A special digger control with built-in engine speed regulator is optional.

When not in use, the digger unit stows in brackets on the derrick and can be easily removed or transferred to another vehicle. Special auger heads

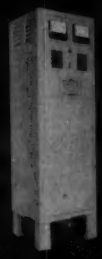
MAGNISTROL

...a NEW LINE of fully automatic silicon battery chargers by...

ACME



- NEWEST CIRCUITRY OF PROVEN DESIGN
- TRANSISTORIZED CONTROL
- PRECISION PERFORMANCE
- LONG UNATTENDED SERVICE
- 100% SAFETY FACTOR
- ALL COMPONENTS EASY TO REACH
- COMPACT WALL OR RELAY RACK INSTALLATION



FOR COMPLETE INFORMATION CONTACT
WILLIAM BRYAN, SALES MANAGER
CUSTOM EQUIPMENT DIVISION

MODEL M129C25
25 AMPERES
AT 129 VOLTS

ACME ELECTRIC CORPORATION • CUBA, NEW YORK
PLANTS IN • CUBA, N.Y. • ALLEGANY, N.Y. AND HAWTHORNE, CALIF.

ACME

now available!

PANCAKE 2800

OVERFLOOR DUCT

FOR USE WITH
CALL DIRECTOR TELEPHONE
AT AWAY-FROM-WALL LOCATIONS

Bell Telephone companies can now install the new Call Director push button telephone neatly at desks away from walls. Wiremold's new PANCAKE 2800 Overfloor Duct has been designed specifically to hold the 100 (or 75) pair cable required with the Call Director. Overall raceway height is held to the absolute minimum. All steel; easy to install on any floor. Write for full information.

THE WIREMOLD® COMPANY
HARTFORD 10, CONNECTICUT ADams 3-6251

Whether it's tool belts or safety straps . . . pliers or wrenches . . . grips or climbers, linemen and electricians know they can expect the highest in quality when their equipment carries the name Klein.

For more than a century Klein has been the leader in designing and producing tools and equipment to serve the exacting needs of the utility field.

Today, wherever power lines or communication lines are strung, Klein tools and equipment are in greater demand than ever, assuring safer, speedier line construction and operation.

WRITE FOR FREE TOOL GUIDE
A free copy of the new Klein Pocket Tool Guide will be sent on request.

ASK YOUR SUPPLIER
Foreign Distributor: International Standard Electric Corp., New York

Mathias KLEIN & Sons
Established 1857 Chicago, U.S.A.

can be supplied for use where soil conditions retard normal efficient operation. Request NP 1068.

•

HIGH-SPEED MICROFILM READER—Coded rolls of microfilm protected in plastic magazines, and viewed in a high-speed reader are Recordak's answer to rapid retrieval of information on microfilm. This concept can be applied to many types of material where frequent reference and high-speed location of a document is required.

The Recordak Lodestar Reader is expected to be of use in telephone companies, in parts lists, and credit reference installations, and retail stores, utilities, railroads, airlines and shipping companies, as well.

Code lines are exposed between document pages on the microfilm according to a pre-established code. A matching code scale on the reader, guides the viewer to the proper document.

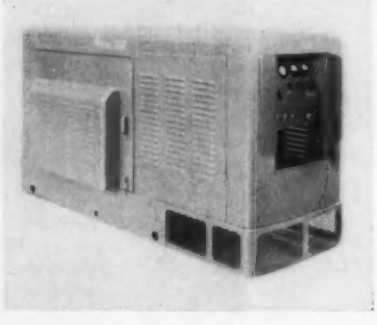
When looking up a document, the viewer merely locates the proper code number and film magazine from a master index, inserts the magazine, and moves the control lever. Film can be viewed at speeds from a fraction of a foot per second to 10 feet per second, Recordak reports. At top speeds, a document can be located in seconds. Insertion of the magazine lights the screen and starts the film drive motor. The magazine cannot be removed until all film is rewound.

Recordak engineers worked with representatives of Sears, Roebuck & Co. for more than three years to perfect the Lodestar system. It was originally designed for parts list applications, and was not commercially available until Sears' installations throughout the nation were completed.

Searching for repair parts in Sears' stores required locating a given item among thousands listed in some 65 volumes totalling 32,500 pages. With the Lodestar, it is reported the same information is contained on 13 rolls of microfilm occupying only 52 square inches of space. Request NP 1069.

EMERGENCY ELECTRIC GENERATING PLANT—A new series of 50,000-watt, gasoline-driven, emergency electric generating plants, each equipped with the new Onan-developed "Magneciter" generator, has been announced by D. W. Onan & Sons Inc.

This new Onan Series KB will provide fast motor starting and full-rated electric power for all types of standby



emergency applications . . . wherever the need exists for dependable, quick-starting auxiliary power.

The new all-weather metal housings are available for the first time as standard items and are said to make this new KB series economical and practical for primary power applications such as floodlighting, etc., in the construction field where rugged day-in, day-out operation is essential.

Onan's new "Magneciter" generator is claimed to provide stepped-up performance in both primary and emergency standby applications by:

(1) Faster voltage recovery . . . up to *five times faster* than a rotating exciter.

(2) Less voltage fluctuation . . . fluctuation with load changes is said to be less than half that of standard-type generators.

(3) Greater reliability . . . all moving parts in the exciter and voltage regulator are eliminated!

(4) Fewer adjustments and easier servicing as a result.

Series 50KB units are complete electric generating plants . . . with the International Harvester UV-401, V-8 engine, Onan "Magneciter" generator and control panel assembled into one compact unit. This gasoline engine-driven generator set is rated 50kw, 62.5kva at 0.8 power factor and is available in all standard voltages to 600 volts. Request NP1070.

YOU NEED ALL THREE of these easy-to-read

TRAINING BOOKS

THE ABC OF THE TELEPHONE books are reprinted from the popular series of articles by Frank E. Lee, currently appearing in TELEPHONY. The books give on-the-job application of technical know-how to thoroughly understand the telephone job.

These are the books telephone companies are using . . . over 30,000 ABC books have been shipped to large and small telephone companies all over the world.

VOLUME I COVERS:
Basic Circuits, Transmitters, Receivers, Induction Coils, Generators, Ringers, Relays, Line Protection, Dials, Automatic Switching, Principles of Protection, Drop Wire Installation.
21 CHAPTERS.

VOLUME II INCLUDES:
Installation and Maintenance of Sub-Station Protection, Station Wire Installation, Subscriber Station Installation, Fault Locating, Relay Circuit Analysis, Loading Coil Theory.
20 CHAPTERS.

VOLUME III COVERS:
Storage Batteries, Metallic Rectifiers, Electronic Tubes, Key Equipment, Carrier Circuits, Community Dial Offices, Central Office Service Objectives, Exchange Plant Trouble Reports and Analysis, Central Office Cross-connections, Routine Maintenance Schedules, Circuit Drawings, Wiring Diagrams.
31 CHAPTERS

Order a set of the three ABC books for each of your men. 72 chapters—284 pages (8½x 11) in the three volumes. Hundreds of illustrations. This is the BIG telephone training value.

Order any volume separately or combine your requirements to take advantage of the lower quantity prices shown on this schedule.

No. OF COPIES	VOL. I	VOL. II	VOL. III
1— 5 copies	$1.50 ea.	$1.50 ea.	$2.50 ea.
6— 25 copies	1.35 ea.	1.35 ea.	2.25 ea.
26— 50 copies	1.20 ea.	1.20 ea.	2.00 ea.
51— 500 copies	1.05 ea.	1.05 ea.	1.75 ea.
501—1000 copies	.95 ea.	.95 ea.	1.60 ea.

Frank E. Lee, Publisher
1751—183rd Street Homewood, Illinois

USE THIS COUPON—ORDER NOW

Frank E. Lee, Publisher, 1751—183rd St., Homewood, Illinois
PLEASE SEND THE FOLLOWING COPIES:

VOL. I_____ VOL. II_____ VOL. III_____

Name_____

Company_____

Street_____

City_____ Zone_____ State_____

Positions in TELECOMMUNICATIONS with General Dynamics STROMBERG-CARLSON DIVISION

STAFF ENGINEERS

Broad General Experience in:

1. Telephone systems including traffic, system layouts, installation, testing and routining, maintenance and transmission requirements.
2. Communication systems, including industrial control systems, telemetering systems and data reduction systems.
3. Telecommunication switching systems including telephone, telegraph and data switching systems.

SENIOR ENGINEERS or PHYSICISTS

3-7 Years Experience in:

1. Design of transistor circuitry, linear and non-linear.
2. Reliability work in military electronics equipment.
3. Filter and network design and analysis.

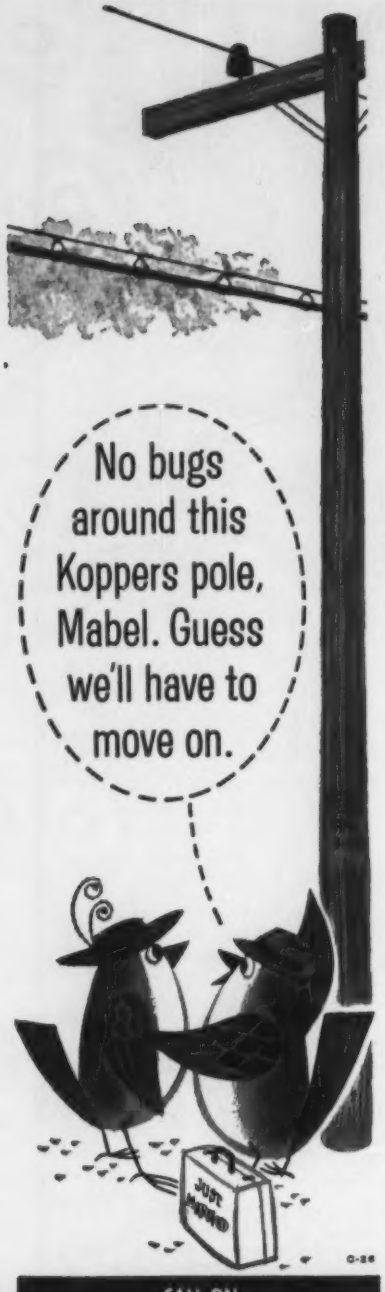
EE's or PHYSICISTS

1. 5-7 years experience in telephone systems engineering including traffic equipment engineering.
2. 2-5 years in transmission line theory. To study methods of high speed digital data transmission.
3. Up to 2 years experience in transistor applications and transmission circuits or theory.

"There is nothing finer than a Stromberg-Carlson" is as true of the company's diverse telecommunications, electronic systems and innovations in military and commercial electronics as it is of Stromberg-Carlson's world famous radios.

If you are interested in a fine engineering career with a leading company in the field, write in confidence to Fred E. Lee, Manager of Technical Personnel. Convenient interviews will be arranged.

GENERAL DYNAMICS
STROMBERG-CARLSON DIVISION
1421 N. Goodman St., Rochester 3, N. Y.



CALL ON

KOPPERS

for rail or truck deliveries of POLES and CROSSARMS from plants and delivery yards

OFFICES IN PRINCIPAL CITIES

WOOD PRESERVING DIVISION
KOPPERS COMPANY, INC.
Pittsburgh 19 Pennsylvania

PORTABLE AND BENCH TEST SETS—The new Biddle dielectric test set 5kv-1 ma comes in portable and bench models.

Its maximum output current is 5 ma at output voltage up to 2.5 kv.

The set can be used for step-voltage resistance tests, voltage withstand, breakdown, and one-minute resistance tests on insulation in electrical equipment with voltage ratings in the 300, 600, and 2500 v classes.

This new addition to the Biddle line of dielectric testing equipment is designed for use with such equipment as:

(1) Rotating electrical machinery, dry-type transformers, switchgear, capacitors and insulators rated 230, 440, 550 and 2500 v ac and dc.

(2) Traction motors and generators rated 600 v.

(3) Wiring installations and cable with smaller conductor sizes and code or heat-resistant insulation rated 600 v.

The bench model is suited for making acceptance and proof test on electrical insulating systems for purposes of quality control in manufacturing and repair.

The portable set (pictured), housed in shock and wear-resistant case, lends itself to severe field use for test of reconditioned equipment after installation, and in preventive maintenance of installed electrical equipment, Biddle states.

The test sets features are said to be:

High maximum output current.

Suited for impulsing faults in tested insulation.

Completely guarded, including the output cable, so that output current as low as 1 microamp can be measured at maximum output voltage even in humid ambient atmosphere.

Very low ripple of output voltage even when low insulation resistance is being measured.

Full-wave dry-type rectifier insures long maintenance-free service.

Excellent voltage regulation.

Fast charging of tested equipment with high capacitance.

Separate meters for measuring output current and voltage.

Separate terminal for connecting external instruments for measuring output current and detecting corona.

Protection against damage by short-circuit even at maximum output voltage.

All connection cables are attached to terminals of the test set circuit inside its housing and stored in a compartment of the case, always ready for use.

Rugged, shock and wear-resistant plastic case with detachable cover and leather carrying strap.

Built for withstanding rough handling in field service without lowering performance standards.

Easily portable, small size, moderate weight (26 pounds).

Request NP1071.

•

SPACER TYPE AERIAL CABLE CLAMP—A new spacer type aerial cable clamp has also been developed by Malleable Iron Fittings Co. Available in two sizes, it provides a messenger diameter range from 5/16-inch. to 5/8-inch.

The clamp assembly consists of a pole plate spacer unit which is said to permit attaching the messenger and cable spacer 4½-inch and 9½-inch respectively from the pole surface. A curved pole contacting surface of large area provides stability of the spacer unit when mounted on the pole.

Smooth grooves with generously belled openings eliminate messenger damage, it is claimed. An extra groove is cast into the spacer body to accommodate an optional pole ground wire. Spacer unit and clamping plate are malleable iron castings, hot dip galvanized. Request NP1072.

Long bow, utility pole or railroad tie—whatever the product—serviceability largely hinges on the method of preservation. Equally critical is the quality of the stock you start with...the raw material. Your wood investment is protected on two counts when you specify AMCRECO pressure treated products. First, a time-tested treating technique, confirmed by major industrial users coast to coast. Second, a 1,500,000-acre timber supply...vast and versatile enough to assure you highest quality grades regardless of your requirements or delivery deadline.

AMERICAN CREOSOTING CORPORATION Louisville 2, Kentucky

Subsidiary of Union Bag-Camp Paper Corporation

COMPLETE . . .
FROM MAGNOLIA!

- CHLOROTHENE—does not corrode aluminum or aluminum alloys under ordinary conditions.
- VIREX—for use on telephones—aids in reducing the hazard of infection by airborne bacteria and viruses; used as a spray, makes air more pleasant and destroys disagreeable odors.
- TELEPHONE BOOTH GLASS CLEANER—easily dissolves smudge, film, scum, smear, bugs, and all soil; a new, easy push-button way to clean and polish.
- MARVEL TELEPHONE CLEANER—saturate clean cotton cloth and rub over instruments; one application takes off all stains.
- MAGNA MIST BOMBS—makes indoor air pleasant; aids in reducing hazard of infection by airborne bacteria and viruses.
- MAG-AL 3 ALUMINUM TELEPHONE BOOTH CLEANER—ideal for cleaning and shining your telephone booths both inside and out. Made especially for the telephone industry.

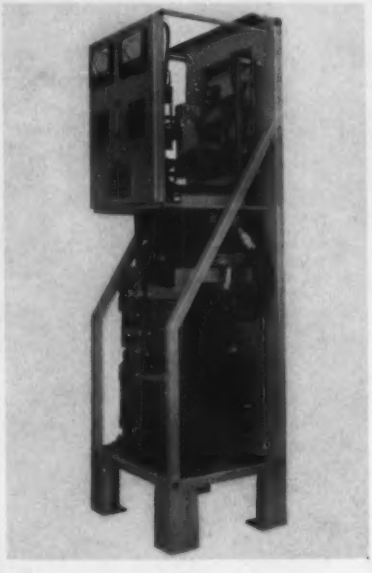
MAGNOLIA CHEMICAL CO., INC.
CHICAGO • LAFAYETTE, INDIANA
TAMPA • DALLAS • LOS ANGELES

Distributed by
LEICH SALES CORP.
427 WEST RANDOLPH STREET
CHICAGO 6, ILL. • RAndolph 6-5441

BATTERY CHARGERS—A line of silicon battery chargers featuring a variety of new features has recently been announced by the Acme Electric Corp.

The single phase Magnistrol chargers are specifically designed for float charging battery installation ranging from 10 cells to 63 cells in five basic amperage capacities in three voltage ranges.

The units are readily adjustable for charging lead acid, nickel-alkaline or nickel-cadmium batteries. Three phase input chargers are also available for



larger capacity installations. Said to be designed around new circuitry, the units are described as having hermetically sealed, non-aging silicon diodes operating with a minimum of 100 per cent safety factor.

In addition to a transistorized control, the company says the chargers provide ±1 per cent voltage regulation and current limiting feature. The control does not allow oscillation of output when the unit is operated with the battery or load disconnected. An additional feature permits no peaking of output voltage after the battery is up to full charge.

For ease of maintenance and inspection, the unit's design is claimed to permit complete accessibility to all components. The instrument panel is integral with the chassis. The Magnistrol line is available for wall, relay rack or floor mounting. Request NP1073.

•

TRENCHER—Charles Machine Works announces production of a new 1959 Model C-3 Ditch Witch trencher. This trencher is a re-designed version of Model C and C-2 trenchers which are used by utlity companies and con-

tractors for the installation of underground service lines for telephone, gas, water, and electricity.

Charles Machine says new features include:

(1) A positive-acting spring-loaded clutch which improves ease of handling by the operator.

(2) A ball bearing screw jack for raising and lowering the digging boom. The use of this type jack is said to triple the speed of raising and lowering the digging chain and reduces operator effort required for this operation.

(3) A spring-loaded sprocket on the digging boom maintains correct digging chain tension at all times and allows rocks, gravel, nails and other foreign material to pass through the digging chain without stalling the machine.

(4) Standard equipment for the C-3 trencher includes a 2 foot depth digging chain with a selection of teeth for digging 3 inches, 4 inches, and 6 inches wide.

(5) Optional equipment available includes dual wheels, a sod-cutting attachment and light weight trailer for transporting the equipment.

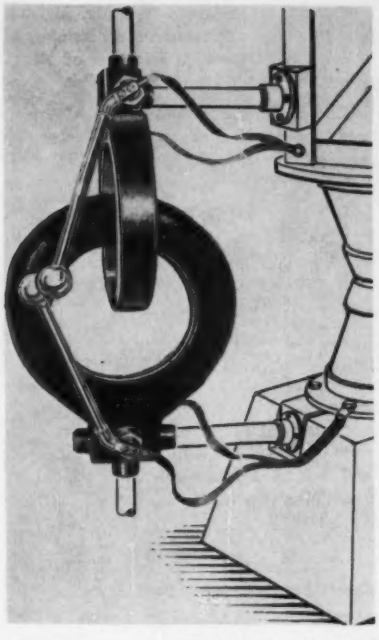
Request NP1074.

•

TOWER LIGHTING TRANSFORMER—A new tower lighting isolation transformer has been announced by Hughey & Phillips, Inc., manufacturer of obstruction lighting equipment, controls and kits.

Available in three load capacities—750, 1750, 3500 watts—these transformers are claimed to provide advantages over similar types heretofore available—advantages such as higher efficiency, improved regulation, additional taps, and epoxy encasement.

Although designed especially to pro-



vide power across the base insulator of a radiator, these transformers are said to be essential wherever 60 cycle power must be transferred efficiently across two points with very low capacitance or at very high voltages. Request NP1075.

Guatemala Establishes Communications Group

A superior council of electric communications has been established in Guatemala by executive order to improve, reorganize, and regulate telecommunications.

The new council is composed of the director of telecommunications, representatives of the Presidency and ministries of finance, communications, and public works. It will serve as a technical body to the ministry of public works.

The executive order abolishes the technical council of electric communications created in Feb. 1957.

D. E. LaMaster Marketing Head for General of Fla.

D. E. LaMaster has been appointed marketing and sales manager for General Telephone Co. of Florida, it was announced by Donald C. Power, chairman and chief executive officer of General Telephone & Electronics Corp. Mr. LaMaster will make his headquarters in Tampa, Fla.

Mr. LaMaster is currently marketing and merchandising administrator with the General Telephone Service Corp., New York City. He joined General Telephone in 1937 and has had experience in the directory companies as well as subsidiary operating telephone companies.

Is YOUR Brush Control Problem "Different"?

WHATEVER YOUR PROBLEM, YOU'LL FIND THERE'S A

WEEDONE®

BRUSH KILLER

specially designed to do the job

Chemical control of brush—for line and roadside clearance and other purposes—has come a long way in a few short years. Weedone Brush Killers, originated by the American Chemical Paint Company, were the pioneers in chemical brush killing. Now immensely diversified, these fine products are still the leaders in the field. Today there is a Weedone Brush Killer specifically formulated for practically every need. Each is selective, effective, completely reliable.

Whatever your brush control problem, there is a Weedone Brush Killer of superior quality

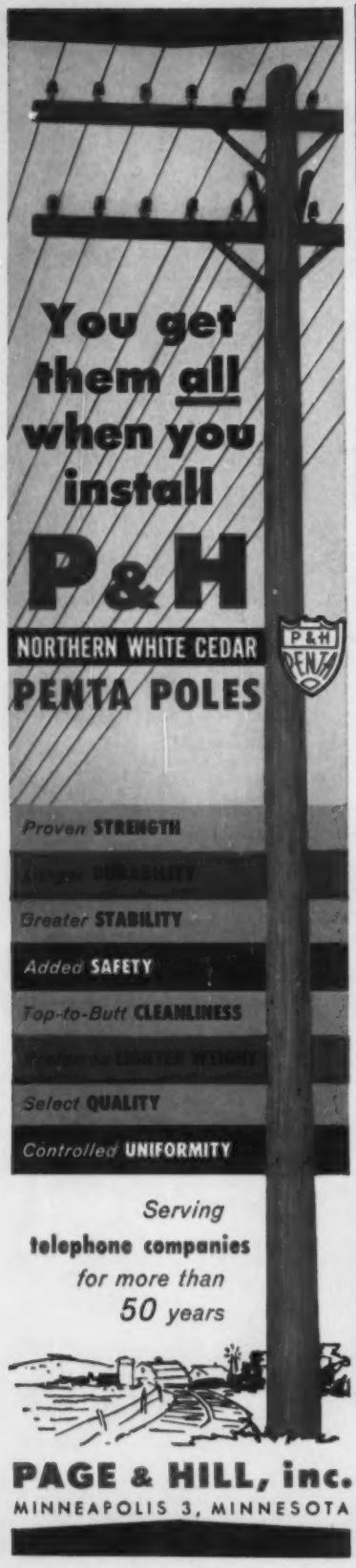
- for practically every purpose
- for every condition of use
- sure in its kill of even the toughest weeds
- laboratory tested
- field proved over thousands of miles of rights-of-way
- economical to use

Write for Weedone Brush Killer folders and full information.

AMERICAN CHEMICAL PAINT COMPANY
Agricultural Chemicals Division
St. Joseph, Mo. • AMBLER, PA. • Niles, Calif.

WEEDONE ACP WEEDONE

Originators of 2,4-D and 2,4,5-T Weed and Brush Killers



Kellogg Appoints McLendon Commercial Sales Manager

Holmes D. McLendon has been named sales manager of commercial products for Kellogg Switchboard & Supply Co., communications division of International Telephone & Telegraph Corp.

H. D. McLENDON

In making the announcement, O. C. Bailey, Kellogg vice president and director of sales, said Mr. McLendon will direct the sale of Kellogg's intercommunication systems and equipment.

For the past two years, Mr. McLendon has been assistant sales manager of the B. J. Electronics Division of Borg-Warner Corp.

Previously, he was manager of equipment sales for Farnsworth Electronics and midwestern field sales representative for RCA industrial products.

A native of Goshen, N. Y. he was graduated from the University of Pennsylvania's Wharton School of Finance and subsequently attended Drexel Institute of Technology.

During World War II, he served with the Army Signal Corps. He studied basic engineering at Yale University under the Army's specialized training program after graduation from the radar school at Camp Murphy, Fla., and FM/AM communication school at Fort Monmouth, N. J.

Rome Cable Co. Ownership Acquired by Alcoa

The shareholders of Rome Cable Corp. have approved a proposed agreement whereby Aluminum Co. of America will acquire ownership of Rome Cable, it was reported on Mar. 26.

Under the terms of the agreement reached by the two companies in January, subject to Rome stockholder ap-

Making presentation to the governor of a telephone symbolic of West Virginia's 500,000th were: from (left): LeRoy N. Darling, secretary of the West Virginia Telephone Association; Governor Cecil H. Underwood; C. H. Johnson, vice president of Chesapeake & Potomac Telephone Co. of W. Va.; R. W. Ingle, of Saint Marys, association president; and Donald A. Roush, president of the Home Telephone Co., New Haven. The inscription on the instrument presented to the governor reads: "This telephone is symbolic of West Virginia's 500,000th telephone, installed in New Haven, W. Va., March 23, 1959." The number of telephones in the state has more than doubled in the last 15 years.

proval, Rome Cable shareholders will get three shares of Alcoa common stock for each five shares of Rome Cable they now hold.

Rome Cable will be operated as a wholly-owned subsidiary of Alcoa. Rome Cable produces copper wire and cable.

Sensible of Others

"Let us cherish sympathy. By attention and exercise it may be improved in every man. It prepares the mind for receiving the impressions of virtue; and without it there can be no true politeness. Nothing is more odious than that insensibility which wraps a man up in himself and his own concerns, and prevents his being moved with either the joys or the sorrows of another."—BEATTIE.

Answers To Questions On Page 28

(1) Yes.

(2) If the call is from a paystation, tell the calling party that you will call him. Check the class of the third telephone as provided for checking the class of a telephone on a collect call.

If you find that the third telephone is a paystation, enter in the space for reports, for example, "(Third tel.) pre (time)." Reach the calling party and advise him that you are unable to transfer the charges. If the third member is not a paystation, proceed as on a paid call.

(3) On subsequent attempts on which the calling telephone is not reached to check the availability of the calling party before making the attempt (for example BY and DA attempts), timing is started on the basis that the calling party is not holding the line.

(4) On WH party calls, the OTC operator starts timing on the basis that the calling party is not holding the line.

(5) The operator should start timing in the same manner as when no one is holding the line at the calling telephone; that is, after announcing the call and securing the initial deposit, the operator should start timing when one party starts to speak to the other.

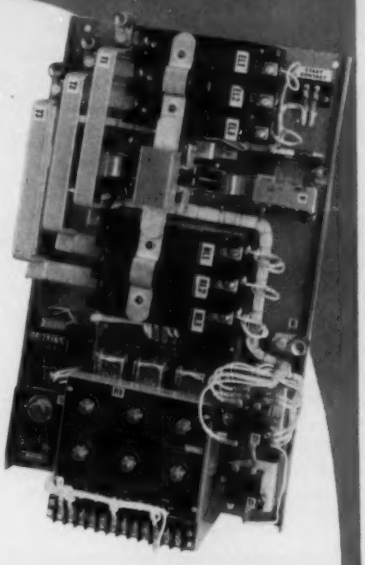
However, when the initial deposit is secured before the call is advanced, the start of timing is the same as on a call from a non-coin telephone.

NOW! TWO MODELS FOR NEW VERSATILITY

TRANS-O-MATIC* *dual circuit breaker* TRANSFER SWITCHES

NO NEUTRAL POSITION

DOUBLE SOURCE CONTROL



For higher voltages and interrupting capacities, rely on the motor-operated Trans-O-Matic. For low-voltage service, employ the new low-cost solenoid-operated T-100-A. Both are electrically operated...mechanically held, with no neutral position. Both feature Lake Shore's exclusive mechanically-linked dual circuit breaker design for *positive* two-position transfer.

Available in 2-pole, 3-pole total failure, partial failure, and under voltage protection, with many optional features.

SOLENOID OPERATED

To 600 volts, 100 amps AC with interrupting capacities to 10,000 amp rms.

MOTOR OPERATED

To 600 volts, 800 amps AC with interrupting capacities to 25,000 amp rms.

Request Bulletins 07400-07500

*CANADIAN WESTINGHOUSE, LTD., is licensed to manufacture Trans-O-Matics in Canada.

THE Lake Shore ELECTRIC CORPORATION

205 Willis Street BEDFORD, OHIO

A complete telephone directory publishing service

300 MONTGOMERY ST., SAN FRANCISCO, CALIF.
OFFICES: EVERETT, WASHINGTON - KILGORE, TEXAS
COOS BAY, OREGON - BEAVERTON, OREGON

The appointment of L. T. Owen (seated) as mountain territory district sales manager for Hubbard & Co., and as district sales manager of its associate, Electrical Engineers Equipment Co., was announced last month. R. M. Waggoner (standing, center), west coast vice president of Hubbard, made the announcement. Witnessing the occasion are two long-time colleagues of Mr. Owen: William Featherstone (left) and R. F. Pinson. Mr. Owen will headquarter in Salt Lake City.

Secode Buys Into Rypinski; Herman Is Named to Board

Secode Corp. has purchased a substantial interest in the C. A. Rypinski Co., a southern California electronics firm, according to a joint announcement by A. S. Garcia, president of Secode and C. A. Rypinski.

I. Herman, executive vice president of Secode, has been named a member of the board of directors of the Rypinski firm.

The Rypinski Co. specializes in audio and radio frequency filters and also manufactures special regulated power supplies and components for the missiles industry. The firm has been closely associated with Secode in the development of electronic communications equipment.

Book Reviews

"TRANSISTOR TECHNOLOGY," Vol. III; edited by F. J. Biondi; 416 pages; $12.50.

This is the last of a three-volume work in the Bell Laboratories Series, on the subject of the structure of semiconductors. Like previous volumes, this book contains some material that was published in scientific journals, with the advantage of placing it under one cover.

This volume deals with the preparation of junction structures, fabrication technology, measurements and characterizations. It is an engineer's book. You can purchase it from TELEPHONY.

Honorable Ambition

"We need another generation of go-getters in our flagging nation. We need to purge the secrecy and guilt which still cling to the inner ambition of most Americans — to get rich." — HOLMES ALEXANDER, *columnist.*

Greatness Shared

'Great men lose somewhat of their greatness by being near us; ordinary men gain much."—LANDOR.

INSPECTION SERVICE
"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consultation and specification writing.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
New York • St. Louis • Portland
Inspectors stationed throughout the U.S.A.

FOR ALL OF YOUR CENTRAL OFFICE AND PBX INSTALLATIONS, MODIFICATIONS, AND ENLARGEMENTS, IT'S THE
T. E. I.
TELEPHONE ELECTRONICS INSTALLATION CORP.
Hayes Bldg., 12 E. Tenth St., Erie, Pa.
CAN WE BE OF SERVICE TO YOU?

Call us collect

for
- CONSTRUCTION CREWS
- CABLE SPLICING
- STATION INSTALLATION
- CENTRAL OFFICE INSTALLATION
- UNDERGROUND DUCT SYSTEM
- CABLE TRENCHING AND PLOWING

IRBY CONSTRUCTION CO.
Since 1925
JACKSON, MISSISSIPPI
815 SOUTH STATE ST. FL 5-4532

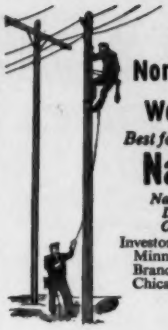
POLES
CREOSOTED SOUTHERN YELLOW PINE
LOW *RESIDUE* COAL TAR DISTILLATE
"Truck Delivery Our Specialty"
Baker Wood Division, D. B. Frampton & Company
P.O. BOX 520 MARION, OHIO

ARCHIE DAVIS, INC.
UNDERGROUND CONDUIT AND MANHOLE CONSTRUCTION
BURIED CABLE—CABLE PLOWING
POLE LINE CONSTRUCTION
522 Forest St., Jacksonville 2, Florida
Telephone: Elgin 3-7501

Communication Equipment Installation
Maintenance Modifications — Additions
Buy — Sell — Trade
Any Make — Type
Midwest Communications Service Co.
P.O. Box 3008 Telephone SW 9-4311
Lubbock, Texas

Professional Engineers - Contractors
Central Office Installation
Cable Splicers, Plant Crews, Installer Repairmen
HENKELS & McCOY
PHILADELPHIA
1800 N. Johnson St., Elkhart, Ind., Tel. 3-2915

FREE Estimates
PLOWING
(Buried wire & cable)
Call Collect
MULLEN CONSTRUCTION COMPANY
2002 E. Wisconsin Ave. REgent 4-9881
Appleton, Wisconsin



Northern white cedar
•
Western red cedar
Best for durability... poles from
National Pole
National Pole and Treating Division, Minnesota and Ontario Paper Company
Investors Building • Minneapolis 2, Minn. Telephone FEderal 8-8881. Branch Office: Prudential Bldg., Chicago • Plant: Minneapolis.

ATLANTIC
Creosoting Co., Inc., 17 Battery Pl., N. Y. C.
PINE POLES
Creosote Oil or Pentachlorophenol
Boston, Mass. Portsmouth, Va.
New York, N. Y. Philadelphia, Pa.
Savannah, Ga.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co.—Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Dierks Forests, Inc., Wood Preserving Division, 810 Whittington Ave., Hot Springs, Arkansas. Southern Pine select poles, all sizes and lengths, pressure-treated, creosote or penta. Also creosote-2% penta mixture. Prompt shipment.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division, Sales—926 Grand Avenue, Kansas City, Mo.—Pressure-treated Southern Pine and Douglas Fir Poles. Creosote and Penta preservatives.

Piedmont Wood Preserving Company —Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CARL C. CRANE, INC.
Consulting Engineers
2702 Monroe Street, Madison 5, Wis.
Telephone CEdar 3-4210

McGRATH ENGINEERING, INC.
Consulting Engineers
209 West 6th Street
TOPEKA, KANSAS
Telephone CE 2-2358

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel: FRanklin 2-5924

CABLE CONSTRUCTION CO.
1512 Center St. Tacoma, Washington
ENGINEERING - CONSTRUCTION
SPLICING - CABLE PLOWING
CENTRAL OFFICE INSTALLATION
World-Wide

ROBERT E. FOLEY CONSTRUCTION CORP.
DESIGN—SURVEYS—APPRAISALS—Construction and Maintenance of Overhead and Underground Telephone Plant. Complete supply of poles available for emergency requirements.
48 GRISWOLD STREET
BINGHAMTON, N. Y. TEL. 2-7215

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
Phone OSborne 5-2267

DAVIS
CONSTRUCTION COMPANY
UTILITY PLANT CONSTRUCTION
45 North Clark Street • Sullivan, Missouri

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less. Classified advertisements must reach us 8 days before publication date.

HELP WANTED

TWO INSTALLER-REPAIRMEN. Must be experienced in repairing outside plant of unattended dial exchanges. Write Rossville Telephone Co., Rossville, Ill.

EXPERIENCED CABLE SPLICERS and central office equipment installers for work on large cable projects in the United States and overseas. Write Box No. 4216, c/o TELEPHONY.

ATTENTION JUNIOR EXECUTIVES—For the first time in your life, live, work and play in delightful, sunshiny, smog free resort area. Immediate opening in progressive company for ambitious, energetic Commercial Office Supervisor who is willing to progress. Supervisory experience in all phases of Commercial functions and dealing with the public required. Replies are confidential. Send complete résumé, recent photograph, and salary expected to Box No. 4226, c/o TELEPHONY.

OUTSIDE PLANT ENGINEERS with ability and experience to qualify for top starting pay of $3.04 per hour. Steady work with large progressive, independent Telephone Company operating in mild dry climate of Southern California. Send complete résumé and recent photograph to Box No. 4225, c/o TELEPHONY.

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY
MIDWEST LOCATION.
The Weikel Line Company, Inc.
FORT WAYNE, IND.

HELP WANTED

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson St., Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

MAN EXPERIENCED IN ALL PHASES of design and construction of telephone plant. Permanent position with good opportunity for right party. McGrath Engineering, Inc., 209 West 6th St., Topeka, Kansas.

POSITION WANTED

CABLEMAN with 12 years experience capable of handling any type of installation or repairs desires permanent position with progressive company. Married, sober, best references. Reply Box No. 4224, c/o TELEPHONY.

WANTED TO BUY

TELEPHONES—all types—any condition, candlesticks, wall sets, etc. Write advising quantities available. Our trucks will pick up. Reply to Box No. 3952, c/o TELEPHONY.

HAVE CASH — WILL BUY telephone property of 500 to 2000 stations with good growth and earnings prospects located in Central States. Reply D. Dressler, 4717 West Hills Dr., Topeka, Kan.

FOR SALE

LEICH 901-wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service, no broken or missing parts, $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wis.

SWITCHBOARD: Common Battery —4 position S-C 106 multiple, 400 lines, 25 ringdown trunks, master key arranged for frequency ringing, also 350 magneto phones. Bill Harrington, Marathon, N. Y.

COOK STATION PROTECTOR (New) 7A Fiber Fuse in lots of 50 or more—$1.45 each. 64 A.E. type 18 Station Protector (New)—$1.75 each, Cook 5 Pr. No. 7 Protector (New)—$2.50 each. Tarnished—$2.00 each. W.E. (Used)—$1.50 each. Telephone Equipment, Inc., Montrose, Mich.

HANDSETS—G type (new) with retractable cord (for 500 set telephone) $5.95 each. F1 W.E. (rebuilt) with retractable cord $3.50 each. TS9 for EE-8 army telephone $3.95. W.E. E1 with straight cord $2.25. Surplus Saving Center, 120 South St., Waymart, Pa.

NORTH ELECTRIC MCX-500 ALL RELAY SYSTEM—400 private lines equipped with Code Ringing for 8 parties per line. (100 lines additional capacity). 9 links per group, 9 manual office trunks, 20 pay station lines, 4 P.B.X. Groups, 8 outgoing and 7 incoming trunks with necessary power and signalling equipment for operation. Two 110 Volt Rectifiers for Charging Battery, operated on 24 Volt DC System. Condition excellent — Used by Southern Bell Telephone Co. Approx. 10 years old. Available for inspection Greenville, S. C. WRITE GENERAL PURPOSE MACHINERY AND EQUIPMENT CO. S.A., 374 Broadway, New York 13, N. Y.

SOLICITATION OF PROPOSALS FOR THE PURCHASE OF THE VIRGIN ISLANDS TELEPHONE SYSTEM

Sealed proposals for the purchase, rebuilding, expansion, and subsequent operation of the telephone system now owned and operated by the Government of the Virgin Islands will be received until 2:00 p.m., E.S.T. on June 12, 1959, at Room 6514, Department of the Interior, Washington 25, D. C. The sealed envelope containing the proposal shall be clearly marked and bear the notation "Proposal for Purchase of the Virgin Island Telephone System."

Proposals are solicited by the Government of the Virgin Islands pursuant to Act No. 317 of the 2nd Legislature of the Virgin Islands, approved June 19, 1958.

A SOLICITATION OF PROPOSALS FOR THE PURCHASE OF THE VIRGIN ISLANDS GOVERNMENT TELEPHONE SYSTEM may be obtained by writing or calling at the Office of Territories, Department of the Interior, Washington 25, D. C. SECTION IV OF THE SOLICITATION, CONTENTS OF PROPOSAL, includes minimum requirements that must be included in proposals submitted.

SWITCHBOARDS AND EQUIPMENT

No. BD-110 complete Switchboard with rubber cables, jacks, lamps, relays, etc. (Circuit equal to W.E. No. 12 Switchboard.) Very Good Used Condition.

PARTS FOR WESTERN ELECTRIC NO. 12 SWITCHBOARDS

W.E. No. 275 Jacks on No. 217-A Mtg. (20 per)
W.E. No. 141 Jacks on No. 112 Mtg. (20 per)
W.E. No. 365 Jacks on No. 136 Mtg. (10 per)
W.E. No. 12-B Lamps on No. 137-B Mtg. (20 per)
W.E. No. 55-A Designation Strips
W.E. No. R-2007 Relays
W.E. No. G-101 Relays
W.E. No. 2MF Condensers

(Above Parts All Reconditioned—Excellent Condition)

Whatever Your Needs . . . It Pays to Call on BUCKEYE!

BUCKEYE TELEPHONE & SUPPLY CO.

Dept. T, 1250 Kinnear Rd. HUdson 8-0655 Columbus 21, Ohio

RECONDITIONED TELEPHONES

W.E. & Kellogg late type #500 sets with new black cases. Reconditioned with st. line ringers.

Price with dial.....$19.50

Price dial blank.....$16.50

Price with dial, less ringer..$16.50
(install your cycle ringer)

W.E. #302 ★ A.E. #40 ★ Kellogg #1000 ★ Stromberg-Carlson #1243 self contained desk sets.

Recond. With met. dial and st. line ringers. Cycles on request.

Price with dial.....$12.50

Price dial blank.....$10.50

As is working order:

Price with dial.....$10.50

Price dial blank.....$ 8.50

LEICH 901 MAGNETO DESK OR WALL
Late type instruments with 1600 ohm ringers & strong generator for those long rural lines. Can convert to C.B. or dial.

Price recond. with coil cord..$20.50

Price as is working order....$15.00

TERMS: OPEN ACCOUNT FOR YOUR INSPECTION TO RATED FIRMS

REQUEST CATALOG: wire, cable, trucks, hardware, switchboards, test sets, parts, tools.

BOHNSACK EQUIP. CO.
GERMANTOWN, N. Y.
Telephone 213 or 214

FOR SALE FOR SALE

CORRECTION
60AP Selectors, complete with 162C Selector Set, new $35.00
60AP Selectors only new $25.00
—(sorry, no 162C separately)—
—our error—

Telegraph Carrier Terminals
W.E. 6-12 channel

Composite Sets

Complete systems & parts

Power supplies—cabinets—racks

H Carrier & filters (C & H types)
Speech-plus Duplex carrier

TG 30-31 Telegraph Repeaters $50.

CF-3A Telegraph Carrier Repeaters $100.

Relays—condensers—plugs—cords —keys—jacks & mountings etc.

priced to sell NOW

—Shipped on approval—

Telectric Co.
1218 VENICE BOULEVARD
LOS ANGELES 6, CALIFORNIA

REPEATERS, VF (new)
Dry line—22 type
TP 14 (portable) 2-4 wire
115-240 VAC—12 VDC
12-18 DB gain (resp.)
—intermedite or end-ring by-passed—
mfg by Federal.....$150.

3-CIRCUIT W.E. (new)
OA-8/FC (X61821-k-1)
115-230 VAC
2 or 4 wire (24-30 DB gain)
7 ft. 19" cabinet (steel) with telegraph composite sets and balancing network, protectors, drainage coils, test jacks, etc....$300.
(note—requires VF ringer set)

VF RINGER
(1000—20 cycle) EE 101A
115-230 VAC (2 circuits) W.E.
New .....$100.
recond. ..... 65.
2 EE 101 in steel cabinet with 7.5 watt Subcycle
TA 38/FC (W.E.) new.....$200.

VF RINGER—115-230 VAC
single circuit
TA 3/FT Federal, new.....$35.

Manual (illustrated) included
—loaned for inspection—
for all above items

EVERYTHING
In Telephone Printing
SUTTLE EQUIPMENT CORP.
LAWRENCEVILLE, ILL. PHONE: 782

ORDER FROM L. E. S. AND PAY LESS
CABLE SPLICING TOOLS & SUPPLIES
PROMPT DELIVERY FROM STOCK
Send for Bargain Stock List No. CS.
LINE EQUIPMENT SALES
46 W. Harrison St., Chicago 5, Ill.

HYDRAULIC CONTROLLED
STERLING
EARTH BORING MACHINES
WYOMING VALLEY EQUIPMENT DIV.
714 WYOMING AVE., KINGSTON, PA.

KILLOREN COMPANY
Construction crews—Installers
Cable Splicers
30 years experience
136 N. State St. Appleton, Wisconsin
REgent 3-5549

NON-RESIDUAL
CONTACT BURNISHER
FOR USE ON ANY TYPE CONTACT
- No residue.
- No filings—no grit or dust no film.
- Economical—flexible—insulated.
- Each one comes in vinyl case.
- Balanced—length 3", 2" blade, 3/16" wide x .007" thick.

SAMPLE TRIAL PKG. OF 10—$3.50. 50 TO 950—24c each.
P. K. NEUSES, INC.
1207 W. Euclid Ave., Arlington Heights, Ill.

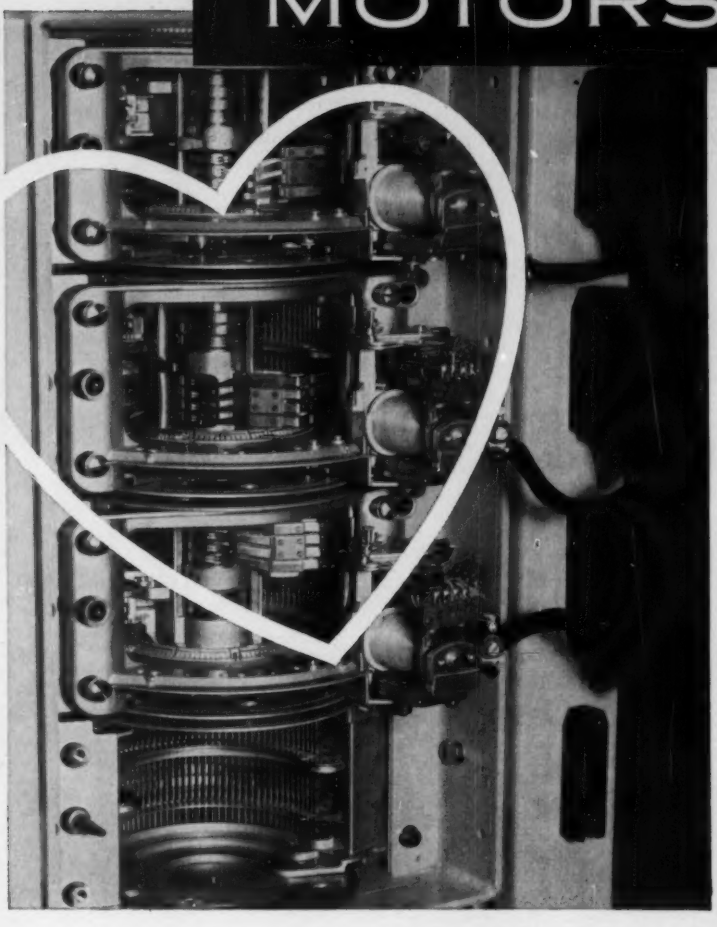
Whether a Winch Line Hook or a complete Line Body check your requirements with
UTILITY TOOL & BODY CO.
CLINTONVILLE, WISCONSIN
UT&BCo

Index to ADVERTISERS

	Page
Acme Electric Corp.	55
Airtronics International Corp.	—
Ajax Business Machines, Inc.	51
Allied Radio Corporation	—
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	—
Aluminum Company of America	—
Amchem Products, Inc.	61
American Chain & Cable Co., Inc. Page Steel & Wire Div.	—
American Creosoting Corporation	59
American Electrical Heater Co.	—
American Steel & Wire Co.	46
American Telephone & Telegraph Co.	—
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	8
Arps Corporation	—
Atlantic Creosoting Co., The	65
Automatic Electric Sales Corp.	30-31, 34-35, 49
Avnet Electronics Corp.	—
Baker Wood Division	65
Barber Advertising Specialties, Walt	64
Barber-Greene	—
Bartlett Tree Experts	—
Bell Telephone Laboratories, Inc.	3
Benner-Nawman, Inc.	—
Berry & Co., L. M.	16
Bethlehem Steel Co.	—
Biddle Co., James G.	—
Bishop Manufacturing Corp.	—
Blaw-Knox Company	—
British Insulated Callenders' Cables, Ltd.	—
Buchart Associates	—
Buckeye Telephone & Supply Co.	66
Burgess-Manning Company	—
Burroughs Corp.	—
Butler Manufacturing Co.	—
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	65
Cable Construction Co.	65
Cable Spinning Equipment Co.	48
Calculagraph Company	—
Chance Co., A. B.	—
Charles Machine Works, Inc.	—
Chase Brass & Copper Co.	—
Cleveland Inst. of Radio Electronics	—
Clifton Appraisal Company	—
Collins Radio Co.	—
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	—
Cook Electric Company	—
Copperweld Steel Co.	—
Crane, Inc., Carl C.	65
Cushman Motor Works, Inc.	43
Davis Construction Co.	65
Davis, Inc., Archie	65
Diamond Expansion Bolt Co.	—
Donnelley & Sons, R. R.	—
Dow Chemical Company, The	—
Dressler & Co.	—
Duo-Safety Ladder Corp.	—
Electric Specialty Co.	—
Everstick Anchor Co.	—
Exide Industrial Division— The Electric Storage Battery Co.	—
Fairbanks, Morse & Co.	—
Fitchburg Engineering Corporation	—
Foley Construction Co., Robert E.	65
Gagne Enterprises, Inc.	—
General Cable Corporation	—
General Insulated Wire Works	—
General Machine Products Co., Inc.	—
General Telephone Directory Co.	—
Gladwin Plastics, Inc.	44
Goodrich Chemical Co., B. F., The	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	—
Haley & Co., R. G.	—
Hallamore Electronics Co.	—
Harris McBurney Company	—
Henkels & McCoy	65
Highway Trailer Company	—
Hirsch Organization Inc., Gustav.	—
Holan Corp.	—
Hopfeld Industrial Manufacturing Co.	—
Hubbard & Company	—
Indiana Steel & Wire Co.	—
Irby Construction Co.	65
Irwin Auger Bit Co.	—
Jet Line Gun Company	—
Johns-Manville	—
Kander & Company, Allen	—
Kearney Co., Jas. J.	42
Kellogg Switchboard & Supply Co.	22-23, 45
Kennecott Wire & Cable Div.	—
Keystone Steel & Wire Co.	—
Killoren Company	67
Klein & Sons, Mathias	56
Kleinschmidt	—
Koiled Kords, Inc.	5
Koppers Co., Inc. Wood Preserving Div.	58
Lake Shore Electric Corp.	63
Leich Sales Corporation	6-7
Lindsay Telephone Supply Co.	47
Line Equipment Sales	67
Lorain Products Corp., The	—
MacKenzie Electronics	—
Magnolia Chemical Company, Inc.	60
Malleable Iron Fittings Co.	—
McCabe Powers Auto Body Co.	—
McGrath Engineering, Inc.	65
Midwest Communications Service Co.	65
Monsanto Chemical Co.	—
Morrison-Pelsue Co.	—
Mullen Construction Co.	65
Murphy Engineering Laboratories	—
Natco Corporation	—
National Pole & Treating Div.	65
National Standard Co.	—
National Telephone Supply Co.	70
Neubauer Manufacturing Co.	—
Neuses, Inc., K. P.	67
North Electric Company	10-11
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc.	—
Owens-Illinois	—
Page & Hill, Inc.	62
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	12
Plastic Wire & Cable Corp.	50
Porcelain Products, Inc.	—
Porter, Inc., H. K.	—
Preformed Line Products Co.	53-54
Radio Frequency Laboratories, Inc.	—
Ramset Fastening System	—
Rawlplug Company, The	—
Raytheon Mfg. Company	—
Recordak Corp.	14-15
Reichhold Chemicals, Inc.	—
Reliable Electric Company	9
Relton Corporation, The	—
Remington Rand Div.	—
Republic Creosoting Co.	—
Rex Corporation, The	13
Rolatape, Inc.	—
Runzel Cord & Wire Co.	—
S & G Manufacturing Corp.	—
Schauer Mfg. Co.	—
Secode Corporation	—
Seymour Smith & Son	—
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	65
Stainless, Inc.	—
Stampings, Inc.	—
Stewart Bros.	—
Stromberg-Carlson Co.	40-41, 57
Superior Cable Corporation	—
Suttle Equipment Corporation	67
Taylor-Colquitt Co., The	—
Telectric Co.	67
T.E.I. Corp.	64
Tel-E-Lect Products, Inc.	—
Tele-Muff Co.	—
Telephone Construction, Inc.	—
Telephone Training Institute	—
Teletype Corporation	—
Tele-Wire Supply Co., Inc.	—
Telkor, Inc.	—
Templeton, Kenly & Co.	—
Thornhill Publishing Co.	64
Transandean Associates, Inc.	—
Tudor & Yager, Inc.	65
Tung-Sol Electric, Inc.	—
United Electric Controls Co.	—
United States Independent Telephone Association	—
U. S. Industrial Chemicals Co.	—
United States Instrument Corp.	69
United States Motors Corp.	—
United States Steel Corp. American Steel & Wire Co.	46
Creosote Division	—
Universal Controls Corp.	2
Utica Drop Forge & Steel Div.	—
Utility Body Co.	—
Utility Service Co., Inc.	—
Utility Tool & Body Co.	67
Volkswagen	—
Warren Mfg. Co., Inc., The	—
Weikel Line Company	66
Western Electric Co.	—
Whitney-Blake Co.	—
Williams Inspection Co., Inc., W. A.	64
Wiremold Co., The	55
Wyoming Valley Equipment Div.	67
York-Hoover Corporation	—

WESTERN REPRESENTATIVE: McDonald-Thompson, 625 Market St., San Francisco, Cal.; 3727 W. Sixth St., Los Angeles; 620 Sherman St., Denver, Colo.; National Bldg., Seattle, Wash.; 3217 Montrose Blvd., Houston, Tex.; 2010 S. Utica, Tulsa, Okla.; 404 Times Bldg., Portland 4, Oregon.

MOTORSWITCH



by USI

Heart of the
Central Office
Telephone Exchange

The Motorswitch has been proven in over a million lines of central office systems now in world-wide service . . . overwhelming evidence of its universal acceptance. Use of the USI Motorswitch enables central office systems to combine the speed and flexibility of common control systems with the simplicity of step-by-step systems.

HIGH STEPPING SPEED—Searches over a maximum of 360 contacts per second, compared to 30 to 40 on stepping switches.

NEGLIGIBLE VIBRATION—Is an advantageous result of the Motorswitch being electrically driven and electrically stopped. Microphonics are reduced and noise levels in equipment rooms are lowered by the absence of ratchet-driven parts.

PRECIOUS-METAL TWIN WIPER CONTACTS—In talking circuits provide lowest contact resistance and maximum reliability and are used throughout the Motorswitch construction.

SOLDERLESS BANK CONTACT STRIPS—Reduce the required number of soldered connections by 90% . . . increase reliability . . . simplify regrading . . . cut the need for grading and level hunting switches.

VERTICAL BANK CONTACTS—Shrug off wear-producing dust.

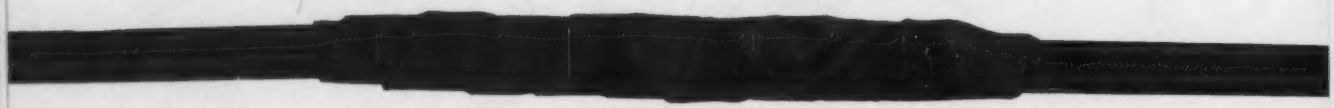
USI CORP.

UNITED STATES INSTRUMENT CORPORATION

CHARLOTTESVILLE, VIRGINIA

Shortest way to Short-proof splices...

Nicopress Splice Separators...



Ideal combination for full-strength, short-proof splices in parallel and twisted-pair wires... Nicopress Sleeves and Nicopress Splice Separators.

Nicopress Splice Separators save time, save tape, eliminate need for staggering splices, provide neater splices, eliminate shorts. Linemen readily make full-strength equal-tension splices in both parallel and twisted-pair conductors with Nicopress Sleeves and Tools, then merely snap the high-dielectric Nicopress Separator between the two splices. Tape is easy to apply over the insulated splices.

Nicopress Splice Separators are available in two sizes... 3456-B for both parallel and twisted-pair drop wire, and 3457-CD for rural distribution wire.

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

Nicopress is the Registered Trade Mark of The National Telephone Supply Company